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ABSTRACT

This study compared two types of school breakfast programs in Minnesota: Fast Break to Learning, a universal free breakfast program ("Fastbreak" schools), and programs with a sliding fee scale ("control" schools). Fastbreak and control schools were compared on several variables: (1) survey responses from principals and food service personnel regarding administration of the programs; (2) student participation rates; (3) attendance; and (4) statewide achievement test scores of third- and fifth-graders in reading, mathematics, and writing. Regarding administration, 95 percent of respondents believed serving breakfast had benefits; a much larger percentage of Fastbreak schools served breakfast after school started; and barriers to implementation most often included scheduling problems. Participation rates were much higher in Fastbreak than control schools, and participation increased by a greater percentage from 1998-99 to 1999-00 in Fastbreak schools. The increase was greatest among Fastbreak school students eligible for reduced-price lunch. Most average test scores increased more in Fastbreak schools than control schools, although this difference generally was weakened after controlling for other variables. Attendance data did not support any significant differences between program types. (Appendices include demographic, achievement, and participation data and survey forms. Contains 40 references.) (EV)

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A Report of the First Year Results, 1999-2000

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Fast Break to Learning School Breakfast Program:
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EXECUTIVE SUMMARY

Several studies have found that children living in poverty are more susceptible to the myriad of negative health and cognitive effects caused by malnourishment than are other undernourished demographic groups in society (Center on Hunger, Poverty, and Nutrition Policy, 1998). Consequently, school feeding programs, focusing primarily on this population of students, have been introduced in an effort to nourish children during the school day. The School Breakfast Program is one such program.

The School Breakfast Program, administered by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA), began in 1966 with the Child Nutrition Act which attempted to provide breakfast for children "in poor areas and areas where children travel a great distance to schools" (Kennedy, E., & Davis, C., 1998). In 1975, the School Breakfast Program became permanently authorized and made available to all children. All public and non-profit schools in the United States are eligible for the program, and any child who meets eligibility requirements may participate. Schools participating in the School Breakfast Program receive financial support through federal funding, and must apply to their state education agency in order to institute a program (Food Research and Action Center (FRAC), Web site: http://www.frac.org).

Various states and school districts have been experimenting with breakfast programs as a means of improving school outcomes. Since its inception, the program has expanded to provide breakfast for millions of children nationwide. In 1998 alone, 7 million children and 68,426 schools participated in the School Breakfast Program (FRAC, Web site). The vast majority of students taking part in the program came from low-income households.

In the state of Minnesota, the School Breakfast Program was first funded by the Legislature in 1994. Since its inception, there has been a steady increase in the number of schools offering a breakfast program. In 1999, Governor Ventura proposed a Fast Break to Learning initiative. Participating schools would offer breakfast to all students at little or no charge and would receive funding for 75% of the estimated loss in student payments.

Public schools serving breakfast in Minnesota can be categorized into two groups. First, there are those schools participating in the Fast Break to Learning Program (*Fastbreak* schools). All students in *Fastbreak* schools, also called universal free breakfast schools, may at the school's discretion receive a school breakfast at no charge. Second, there are schools serving breakfast on a sliding fee scale, with the fee depending on family income (*Control* schools). In this study, the *Control* schools were schools currently serving breakfast on a sliding fee scale, but that were eligible to participate in the Fast Break to Learning Program.

Fastbreak and *Control* schools were compared on several variables: (1) survey

responses from principals and food service personnel regarding the administration of the School Breakfast Program, (2) participation rates of students in the School Breakfast Program, (3) attendance, and (4) statewide achievement test scores of third and fifth graders in reading, mathematics and writing.

Because the *Fastbreak* schools entered the program in Fall 1999, the changes in breakfast participation, attendance, and achievement from academic year 1998–99, the year prior to implementation of universal free breakfasts, to 1999–00, the year of universal free breakfast implementation, was examined. The intention was to see how gains in the schools switching to a universal free breakfast program (*Fastbreak* schools) compared to the gains in schools retaining a sliding fee program for school breakfast (*Control* schools).

To facilitate analyses regarding attendance and achievement, a third group of schools was added, consisting of schools that are not serving breakfast to any students (*No Breakfast* schools). These schools were chosen from the same districts as the *Control* schools. Schools with poverty levels similar to those of the *Control* schools were selected whenever possible; however, this was difficult in smaller districts, as the number of schools is limited. Since the study was designed primarily as a comparison of schools with the two different kinds of school breakfast programs, the focus throughout is on the comparison of *Fastbreak* and *Control* schools.

Conclusions

Administration:

Overall, the vast majority (over 95%) of principals and food service personnel surveyed believed there were benefits to providing breakfast in schools.

While most *Fastbreak* and *Control* schools were serving breakfast before school started, more *Fastbreak* than *Control* schools (49% vs. 7%) were serving breakfast after school started.

When asked about barriers that still exist in implementing a breakfast program, the barriers mentioned most often were (1) bus scheduling, (2) lack of time before the school day, (3) taking time away from the instructional day, and (4) the perception that school breakfast is only for free or reduced-price lunch eligible students. However, of the eight barriers asked about in the survey, less than one-fourth of principals mentioned any one particular barrier to implementing the School Breakfast Program in their school.

Participation:

Participation rates for breakfast programs were significantly higher for *Fastbreak* schools than *Control* schools in every student category analyzed, both in 1998–99 and 1999–00. The percentage of *Fastbreak* school students receiving breakfast per day increased by 7 percentage points (39% to 46%) from 1999 to 2000 compared to only 2 percentage points (from 17% to 19%) in *Control* schools. The increase was greater among *Fastbreak* school students eligible for reduced-price lunch, where participation increased by 12 percentage points (32% to 44%). This compares to a 1 point increase in the *Control* schools (from 20% to 21%) among students eligible for reduced-price lunch.

Achievement:

The study used five measures of achievement: the statewide *Minnesota Comprehensive Assessment* test results in 3rd grade reading, 3rd grade mathematics, 5th grade reading, 5th grade mathematics, and 5th grade writing. For each test, we examined the improvement (or decline) in average scale score, the percentage of students scoring at Level II or above, and the percentage of students scoring at Level III or above.

In four of the five comparisons (the exception being 3rd grade reading), average scale scores increased more for *Fastbreak* schools (or decreased less, in the case of 5th grade writing) than for *Control* schools. However, after controlling for school differences in poverty concentration, LEP concentration, special education concentration, and new student concentration, only the 5th grade writing difference was statistically significant.

Results for gains in the percentage of students scoring at or above Level II were similar. Except for 3rd grade reading, in which *Control* schools gained somewhat more, the gains were slightly higher (or the decline slightly less for 5th grade writing) in *Fastbreak* schools in 3rd and 5th grades. After controlling for school differences in poverty concentration, LEP concentration, special education concentration, and new student concentration, only two differences were statistically significant: the greater gain for *Control* schools on the 3rd grade reading examination, and the smaller decline in 5th grade writing for the *Fastbreak* schools.

The increase in the percentage of students scoring at or above Level III was slightly greater for *Control* schools in 3rd grade, and slightly greater (or the decline less in writing) for *Fastbreak* schools in 5th grade. Only the differences favoring *Fastbreak* schools in 5th grade reading and mathematics were statistically significant after controlling for school poverty concentration, LEP concentration, special education concentration, and new student concentration.

Attendance:

Average attendance rates in Minnesota elementary grades are generally high. Average attendance rates for 3rd and 5th grade students of varying income levels in the *Fastbreak*, *Control*, and *No Breakfast* schools all ranged from 93–96%. There was no evidence in these data to suggest a larger improvement in average attendance from 1998–99 to 1999–00 among *Fastbreak* schools than among *Control* schools or vice versa.

Although there were differences in results between *Fastbreak* and *Control* schools, it is important to recognize the recency of the Fast Break to Learning Program when interpreting these results. This was the first year of the universal free breakfast program for *Fastbreak* schools, and it is unclear whether all schools completed the implementation in the first year. In addition, we do not know whether or not the effects of the new program have been fully manifested. The findings in this report should be interpreted cautiously and considered to be baseline data.

LITERATURE REVIEW

Research has shown that students often come to school either hungry, undernourished, or both (FRAC, 1989). Malnourishment leads to an array of health problems in children, including extreme weight loss, stunted growth, weakened resistance to infection, brain damage, and in some cases death (Brown & Pollitt). In addition, poor overall nutrition affects the ability of children from all socioeconomic levels to learn (Troccoli, 1993). Children's breakfast consumption is therefore a critical issue facing contemporary families, educators, administrators, and policy makers. This literature review identifies some studies that have addressed the cognitive, academic, and behavioral effects that school breakfast programs have on participating children.

Children who eat breakfast tend to be healthier than non-breakfast eaters with respect to calories consumed, protein and carbohydrate intake, and vitamin and mineral ingestion (Dwyer, 1998). Breakfast omission has been found to be more prevalent among African-American and Hispanic youth from low-income households (Dwyer, 1998). Sampson, Sujata, Meyers, & Houser (1995) investigated the nutritional deficits associated with breakfast omission among 1,151 low income African-American 2nd through 5th graders.

The authors measured breakfast consumption via a survey (Did you eat breakfast this morning? Did you eat a snack on the way to school?) administered four times over a two week period. Specific foods consumed throughout the day were measured by a 24-hour recall method, asking students to report all foods consumed up to the time of the interview that followed lunch. Results found that 22–25% of the subjects skipped breakfast before coming to school, and that breakfast skippers were significantly more likely than breakfast consumers to have inadequate intakes of essential nutrients such as vitamins A, B6, C, D, E, and calcium and iron. The authors concluded that skipping breakfast diminishes nutrient intake, leading to an array of health problems. Thus, according to the authors, efforts to increase breakfast availability to low income African-American children are recommended.

Such discoveries become salient when considering that children living in poverty are more susceptible to the myriad of negative health and cognitive effects caused by malnourishment than other undernourished demographic groups in society (Center on Hunger, Poverty, and Nutrition Policy, 1998). Consequently, school feeding programs have been introduced in an effort to nourish children during the school day. The School Breakfast Program is one such program.

The School Breakfast Program, administered by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA), began in 1966 with the Child Nutrition Act, which attempted to provide breakfast for children "in poor areas and areas where children travel a great distance to schools" (Kennedy, E., & Davis, C., 1998). In 1975, the School Breakfast Program became permanently authorized and made available to all children.

All public and non-profit schools are eligible for the program, and any child who meets eligibility requirements may participate. To receive a reduced-price meal, a child's family income must fall below 185% of the federal poverty level. To receive a free breakfast, one's household income must fall below 130%. Parents must apply to the school in order for their children to receive a free or reduced-price breakfast. Schools participating in the School Breakfast Program receive financial support through federal funding, and must apply to their state education agency in order to institute a program (FRAC Web site).

The USDA requires that school breakfasts meet minimum nutritional standards, and must include one serving of milk, one serving of juice/fruit or vegetable, and two servings from the bread and/or meat groups (Dairy Council of Minnesota, 1993). Since its inception, the program has expanded to provide breakfast for millions of children nationwide. In 1996 alone, 7 million children and 68,426 schools participated in the School Breakfast Program (FRAC, Web site), with 90% of students taking part in the program being from low income households (Dwyer et al, 1996).

Past Research on the Benefits of Breakfast

As far back as the mid-1900s, breakfast has been viewed as critical with regards to daily functioning. This association has been reflected in the research. Dickie and Bender (1982) conducted an extensive review of literature focusing on the cognitive and academic benefits of eating breakfast. They point out that although early studies, dating back to the 1930s and 1940s, linked breakfast consumption with improved academic achievement, the research failed to obtain quantitative data or employ objective assessment methods. Instead, these studies used terms such as "increased nervousness" and "increased fatigue," via teacher and nurse reports, to describe the demeanor of students who skipped breakfast.

In the 1950s, Tuttle conducted the Iowa Breakfast Studies in an attempt to show the effects of a variety of breakfast regimens on various physiological parameters (Dickie & Bender, 1982). However, he was unable to show consistent negative links between breakfast omission and the work output of adults. When results did show a link, closer investigation of the research design revealed poor methodology such as small subject samples and subjective assessment techniques.

Regarding studies specific to school breakfast programs, Dickie and Bender (1982) report that research has failed to show a consistent link between program participation and improved test scores and attendance. They do cite one study (Richards, 1972) that concluded occasional breakfast omission is more deleterious to performance on mental tests than constant omission of breakfast. Based on their final analysis that there is a lack of good evidence linking breakfast consumption and positive functioning. Therefore, Dickie and Bender concluded that the adage, "breakfast is the most important meal of the day" was nothing more than a myth.

However, today's advanced technology, current research designs, and sophisticated statistical analysis make the continuing lack of research unacceptable. In fact, contemporary scientific research is increasingly supporting the overall

importance of breakfast with regards to health and behavior (Dairy Council of Minnesota, 1993). It is being found that school breakfast programs not only serve as ways to alleviate hunger among low-income children, but also are linked with improved mental and psychological functioning among pupils (FRAC, 1989). Troccoli (1993) recommends that more studies linking good nutrition to improved academic achievement and increased attendance be conducted in order to build support for, and expand, good child nutrition programs.

Reports from Schools on the Effects of the School Breakfast Program

Aside from the small number of studies on academic performance and cognitive functions mentioned later in this review, there are reports from individual school systems where the School Breakfast Program has been implemented. In 1994, the Department of Education for the State of Connecticut published a report on teachers' perceptions of the School Breakfast Program.

Three hundred teachers of first through third graders were mailed surveys asking about their opinions on the School Breakfast Program's effect on the classroom. Sixty-three percent (188) responded to the survey. In this study, 75% of teachers who responded perceived the School Breakfast Program as helping to improve student behavior, including attentiveness and alertness, energy level, motivation, concentration, and self-discipline. Over half of the teachers (95 of 188) said they had seen students' independence, cooperation, responsibility, socialization, and curiosity increase as a result of participating in the School Breakfast Program.

Support for the program was even greater when teachers were asked whether or not the School Breakfast Program had a positive influence on the school day. Eighty-seven percent (163 of 188) of those responding answered that it did, compared with only 13% (25 of 188) who claimed it did not have a positive influence (Ragno, 1994).

Although the majority of teachers thought the School Breakfast Program was positive, approximately one-third (59 of 188) of teachers said that the program had made their job more difficult. Some of the teachers indicated that it took too much time away from teaching.

Overall, teachers in Connecticut perceived that children were experiencing benefits due to participation in the School Breakfast Program. As a final question, teachers were given the opportunity to share any additional comments or opinions about the School Breakfast Program. These responses were then categorized into three groups: program support, program non-support, or program improvement needed. Over half (51%) of teachers expressed sentiments that were interpreted as support for the program, compared to 15% who did not support the program. Approximately one-third of respondents offered suggestions for improving upon the current system.

A study supported by General Mills, Inc. (Sampson, A.E., 1992), looked at the effects of School Breakfast Program participation on the dietary intake of 1,151 second through fifth grade children attending schools in East Orange,

New Jersey. Of these, 900 children were included in an analysis of the effects of school breakfast on school performance, specifically academic and cognitive performance, and absence and tardiness rates among participants in the School Breakfast Program. The study design compared the outcome measures of School Breakfast Program participants to those of non-participants at three selected schools in East Orange.

Several cognitive tests were administered in homerooms in the morning; these included digit span forwards and digit span backwards, WISC-R mazes, WISC-R coding, cancellation tasks, Beery VMI, and Raven's Coloured Matrices. California Achievement Tests (CAT) with subtests for reading, writing, and math were used to measure academic performance. The authors hypothesized that participation in the School Breakfast Program would lead to a decline in absence and tardiness rates and improvements in cognitive and academic performance.

There were no differences in the attendance rates of either group at any of the schools prior to the implementation of the program. However, after the implementation of the School Breakfast Program, program participants had significantly higher attendance rates and decreased occurrences of tardiness than did non-participants ($p < .0001$). However, only frequent participation (defined as > 75%) in the School Breakfast Program was significantly associated with improved attendance and decreased tardiness.

Prior to the implementation of the School Breakfast Program, participants had significantly lower scores for math, reading, and language ($p < .05$) than the non-participants. After the School Breakfast Program began, participant scores improved and were comparable to those of non-participants. However, the authors indicated that the independent contribution of frequent School Breakfast Program participation to the improvement in test scores was not statistically significant. Additionally, participation in the School Breakfast Program did not seem to result in statistically significant differences in standardized cognitive test scores. Sampson notes, "The lack of statistically significant results reflect the fact that there was no group of children whose diets had changed as a result of School Breakfast Program implementation. School performance changes resulting from dietary improvements could therefore not be addressed" (p. 45).

Another report produced by the Center for Applied Research and Educational Improvement (CAREI) at the University of Minnesota examined the effects of the Minnesota Universal Breakfast Pilot Study (Universal Free Breakfast Program) on students at six pilot schools in Minnesota (Wahlstrom, K.L., Bemis, A., & Schneider, J., 1997). Questions such as what affected students' participation in the Universal Free Breakfast Program, and what specific benefits were observed by school staff, parents, and students as a result of student participation in the breakfast program, provided further evidence that eating breakfast affects students' academic performance, their ability to concentrate and pay attention, their health/stress levels, and their behavior.

Data was collected using survey questions (in-person and telephone interviews and questionnaires). All respondents from pilot schools except principals/ administrators, who were interviewed using open-ended questions only, were

given opportunities to answer both open-ended questions and questionnaires based on scaled responses (i.e., the student questionnaire used a three-item scale: "very often," "sometimes," or "never"). Questions elicited opinion and perception from respondents, who were not asked to keep records throughout the three-year pilot program. Instead, interviews and questionnaires focused on each respondent's recollections and impressions of the program and its effects.

The response to the Universal Free Breakfast Program was overwhelmingly positive. Parents, teachers, administrators, nursing staff, food service personnel, and students generally agreed that the availability of the program, the way it was run, and the effects were positive for students, their families, and the school as a whole. Benefits mentioned by respondents included reduced stress, improved behavior, increased readiness to learn, fewer nurse's office visits due to head- and stomachaches, and a sense that even though classroom time may have been reduced to allow for breakfast, students were more able to focus on the task of learning and, therefore, more could be accomplished in less time. In some cases, respondents indicated that there had been challenges (for example, some food service staff mentioned space and time issues) but that necessary adjustments had been made and that the results were worth the adjustments.

Teachers were asked about four specific areas of students' behavior and performance, including physical effects, learning readiness, social behavior, and attendance. Parents from the pilot schools were asked their opinions of the Universal Free Breakfast Program: was the program a positive experience for the child and/or the family? Were nutritious foods offered? Should the program be continued? Would they be willing to pay for their children to participate if the program were no longer offered for free? Principals indicated that all children were given the opportunity to eat, and that there were affective benefits, a decrease in discipline and nurse referrals, an elimination of the need for snack breaks, and social and learning benefits for both teachers and students. Overall comments from the school nurses and food service personnel indicated positive support for the program as well.

The study's authors pointed out that the schools had also seen increases in reading and math scores on standardized tests, but that the variety of test publishers, testing schedules, and grades tested among the various pilot sites made comparisons difficult. In addition, the scope of this study did not extend to innovations that the pilot schools might be implementing at any given time during the three-year period, so that controlling for certain variables was not possible. Therefore, based on this data, the authors could not "conclude that the breakfast program is correlated with this general increase of scores" (p. iv).

Unfortunately, as of 1993, the School Breakfast Program was considered to be one of the most underutilized federal nutrition programs (Dairy Council of Minnesota, 1993). Compared to the National School Lunch Program (NSLP), the program was not as widely available, and tended to be mostly offered in schools where the economic need was great. Participation in the program among students was far less than Nation School Lunch Program participation. However, surprisingly, research has shown that School Breakfast Program availability is not linked with participation (Kennedy & Davis, 1998). Other factors, such as lack of time, perceived social stigma, and logistical problems

(i.e., bus schedules) have served as obstacles in the way of student participation (Kennedy & Davis, 1998). Consequently several school districts have developed mechanisms intended to increase participation in the program.

Central Falls, Rhode Island, had a school breakfast program available for several years, but was not experiencing high participation rates. In 1994 the district launched a universally free breakfast program in hopes of increasing participation rates. The universally free breakfast led to an increase in School Breakfast Program participation and considerably fewer children entering the classroom hungry (Cook, Ohri-Vachaspati, & Kelly, 1996). The study also found a decline in tardiness and absence rates in the Central Falls schools after implementation of the new program.

The Abell Foundation (1998) conducted a study comparing pilot elementary schools in Baltimore, using a reformed breakfast program, to elementary schools using the traditional, reduced-price feeding program that proved unpopular among students. The authors hypothesized that the traditional breakfast program was unpopular for two reasons. First, families believed a negative stigma was attached to reduced-price feeding programs. They did not want their children to obtain a reputation for being poor and needy. Second, meals were served before normal school hours making it difficult for families to get their children to school at such an early hour. To combat these problems, the pilot schools served breakfast to all children at no cost. This made it impossible for students or faculty to tell who was in fact from a low-income family. The pilot schools also served meals in the students' first class during normal school hours, circumventing scheduling complications faced by families.

Schools employing the pilot-feeding program saw School Breakfast Program participation reach 85% of students, versus 18% participation in the traditional schools. Pilot schools saw class attendance increase 4%, compared to a 1% decrease in traditional schools. Disciplinary incidents decreased by 50% in pilot schools while remaining constant in traditional schools.

Educators showed additional support for the pilot program through anecdotal evidence. Teachers indicated that there was a salient human element to the pilot breakfast program. The kids appeared to socialize more, stay in friendly moods throughout the day, and engaged in more playful behavior. The authors conclusion was that for a School Breakfast Program to succeed, it needs to be stigma-free and relatively compatible with families' schedules.

Another pilot feeding program was instituted in Philadelphia between 1990 and 1992 (McGlinchy, 1992). In an effort to reduce burdensome paperwork and eliminate stigmas associated with meal program participation, educators forfeited cash collection from all students in schools where 70% of students were eligible for free meals. School administrators no longer were put in positions of reviewing feeding program forms, handing out meal tickets, and preparing rosters of eligible kids. The author estimated that over 13,000 hours of administration time was saved and costs were reduced by $96,000.

In addition, by concentrating on schools with a 70% or greater rate of free-meal-eligible students, the schools were able to net a positive bottom line of over $644,000 through reimbursement and subsidy programs. Also, the stigma

of welfare, which McGlinchey pointed out as being the main obstacle to free and reduced-price meal program participation, was eliminated since meals became free to all students. Unhindered by stigma, children increased their breakfast program participation by over 3,000 meals.

The reports from individual school systems are generally based on the perceptions of parents, teachers, and students rather than on scientifically designed studies. However, reports consistently indicate that the School Breakfast Program has provided benefits such as decreased absence and tardiness rates, improved readiness to learn, and gains in social behavior among participating children.

Studies Examining the Effects of Hunger and School Breakfast Program Participation on Academic Performance, Attendance, and Social Behavior

Few studies directly link the School Breakfast Programs with increased or improved academic achievement. Those that do often focus on children from low-income backgrounds, or children with poor nutritional status, supporting implementation of the School Breakfast Program in primarily low-income areas. The following studies have identified the effects of the School Breakfast Program on children's academic performance.

A study by Meyers, A.F., Sampson, A.E., Weitzman, M., Rogers, B.L. and Kayne, H. (1989) examined standardized test scores, tardiness and absence rates among low-income elementary school children in grades three through six in Lawrence, Massachusetts, before and after the implementation of the School Breakfast Program. The School Breakfast Program had 335 participants and 688 non-participants. The *Comprehensive Test of Basic Skills (CTBS)* was given to the children in the spring before the start of the School Breakfast Program. At that time, children who eventually became participants in the School Breakfast Program had significantly lower reading and math scores, and lower *CTBS* battery total scores than non-participants. Although not significant, scores for language were marginally lower than non-participants.

The School Breakfast Program began in January, at the start of the second semester of school. The *CTBS* was then re-administered in the spring after approximately three months after the School Breakfast Program implementation. The researchers found that School Breakfast Program participation was strongly associated with improved standardized achievement test scores. Increases from the previous year's language and *CTBS* battery total scores were significantly greater for participants than for non-participants. In addition, the study found a negative association between participation in the School Breakfast Program and rates of absenteeism and tardiness. However, the study did not take into account factors such as family income, family structure, length of stay of the child and their family in the United States, or the educational achievement of the children's parents (Meyers, et al., 1989), all of which may play a role in a child's educational development.

An article by Simeon (1998) reviewed a longitudinal study that evaluated the link between the School Breakfast Program and achievement, attendance, and physical growth among Jamaican 7th graders. The children were divided into

three groups: class 1 received the school breakfast, class 2 received a syrup drink, and class 3 did not receive breakfast of any kind. Results found there were no differences between classes 2 and 3, therefore, in the end, they were combined and compared to the test group for reporting purposes. Approximately half of the children in the study had a weight-for-age less than 80% of the reference standard and were therefore classified as undernourished.

The *Wide Range Achievement Test* was used to measure math and spelling ability, although time constraints did not allow for reading data to be collected or analyzed. The children were studied for two semesters for the purpose of this research.

The results indicated that eating school breakfast increased attendance. However, Simeon does suggest that the reason for increased attendance could be due to the impoverishment of the children: if they came to school, they would get breakfast because of the study. Many of these students were in situations where if they stayed home, they might not get food at all.

The results also showed that participation in the breakfast program led to greater achievement in math scores for participants than for the students in the control groups. However, no significant differences were seen in the spelling scores between the control and test groups of children.

Additional analyses of the data indicated that the improvements in arithmetic scores were independent of attendance. While it might be supposed that increased attendance alone would indirectly lead to improvements in arithmetic (more frequent classroom exposure would seem to increase learning), this further analysis indicates that something other than classroom attendance was improving the test scores. The possibility exists, therefore, that participation in the School Breakfast Program was a salient factor.

Powell, Walker, Chang, & Grantham-McGregor (1998) conducted a study examining the effects of breakfast on 2nd–5th graders in sixteen rural Jamaican schools. Half of the 814 subjects were classified as undernourished and half were classified as adequately nourished. Youth in both groups were matched for school and class, and then assigned to either a control group or a breakfast group. After baseline data (height, weight, attendance, *Wide Range Achievement Test* scores) was obtained for each group, a breakfast program was implemented for the breakfast group, serving breakfast at the schools everyday for a year. Children in the control group, however, were given a quarter of an orange, and given equal amounts of attention as the breakfast group.

Results revealed that youth in the breakfast condition showed small, but significant improvements in attendance and nutritional status compared to the control group. In addition, those eating breakfast gained an average of .25 cm more in height over an 8-month period compared to children in the control group. Children in the breakfast group also gained significantly more weight than control group youth. Improvement in test scores was found only among 2nd and 3rd graders in the breakfast condition, and only in the arithmetic component of the *Wide Range Achievement Test*. There was no significant improvement in the spelling or reading components.

Overall, the undernourished youth did not benefit more from breakfast than

the adequately nourished children. The authors concluded that the school breakfasts contributed only slightly to improved achievement, attendance and nutritional status. They argue that greater improvements may occur in more undernourished populations. Results from Powell, et al., were obtained using a well-designed study method, including large sample size and random assignment to conditions. However, using such a homogeneous (rural Jamaican) sample limits the applicability of their findings.

A study conducted by Murphy, et al. (1998a) looked at how participation in the Universally Free School Breakfast Program affected academic and psychosocial functioning. The study focused on low income children in grades 3–8 who were attending inner-city schools in Baltimore, Maryland, and Philadelphia, Pennsylvania. Students' math, science, social studies, and reading grades were collected before and after the implementation of the School Breakfast Program to measure student achievement. Results found that children who increased their School Breakfast Program participation were significantly more likely to increase their math grade as well. However, there were no significant differences found in student grades in science, social studies or reading.

Decreased rates of absenteeism and tardiness were also noted among the children who participated in the School Breakfast Program. In addition, this study measured depression, using the *Children's Depression Inventory (CDI);* symptoms of anxiety, using the *Revised Children's Manifest Anxiety Scale (RCMAS);* and a parent-reported *Pediatric Symptom Checklist (PSC),* which identifies children with psychosocial dysfunction. The psychosocial tests indicated that children who sometimes or often participated in the School Breakfast Program had lower scores (although not significantly lower) on all of the tests they were less anxious and were less likely to be identified as depressed or as psychosocially dysfunctional. Children who increased participation in the School Breakfast Program had significantly greater decreases in *RCMAS* scores compared with children whose participation in the program declined or stayed the same.

Children in the Baltimore sample were also assessed on hyperactivity, using the *Conners' Teacher Rating Scale-39 (CTRS-39).* The findings indicated significantly higher (worse) scores for those who rarely ate breakfast compared to those students who ate breakfast sometimes or often (Murphy, et al., 1998a). Although not all findings proved significant, this study concluded that the School Breakfast Program has a positive influence on the academic functioning and psychosocial functioning of students.

Murphy, et al. (1998b) conducted a study that also examined the relationship between hunger and psychosocial function in low-income children. This study was a collaborative effort with the previously mentioned study by Murphy, et al., yet the outcomes measured were more focused on hunger and its relationship to psychosocial dysfunction. The study population was selected from the Baltimore and Philadelphia public schools, grades 3–5 and 8.

Each child's hunger was assessed through an 8-item parent questionnaire developed by the Community Childhood Hunger Identification Project (CCHIP). The *Child Hunger Index Parent (or Child) Report (CHI-P/CHI-C)* was administered to measure association between the answers given by parent and child. Children were classified as "hungry", "at risk for hunger", or "not

hungry." The *PSC* was used to assess psychosocial dysfunction; a *Child Behavior Checklist (CBCL)* was used to assess child behavior; the *CTRS-39* and *CTRS-39s Hyperactivity Index Scale* were used to assess hyperactivity and other behavior; and the *Children's Global Assessment Scales (CGAS)* were used to assess overall functioning.

Children classified as "hungry" or "at risk for hunger" were more likely to be clinically impaired than children classed as "not hungry." They were also more likely than children classed as "not hungry" to have behavior impairments. The Hyperactivity Index scores were significantly higher (worse) for children identified as "hungry," compared to children classed as "not hungry" and children who were "at risk for hunger." Psychosocial scores from the *PSC* test were significantly associated with hunger status and were higher (worse) for "hungry" children than for children who were not, although the results were not statistically significant. Tardiness and absenteeism rates were significantly higher among "hungry" children compared to children who were identified as "not hungry."

Overall, results from the study indicated a significant correlation between food insufficiency, classroom behavior, and psychosocial problems (Murphy, 1998b). The findings suggest that alleviating hunger can improve a child's psychosocial behavior. It could also be inferred that improved classroom behavior might lead to better performance in the classroom, although this study did not look at academic achievement.

A similar study conducted by Kleinman, Murphy, Little, Pagano, Wehler, Regal, & Jellinek (1998) also looked at the effects of hunger on psychosocial and academic performance. The Community Childhood Hunger Identification Project (CCHIP) questionnaire and *Pediatric Symptom Checklist (PSC)* were used to measure psychosocial dysfunction. In this study, the sample included 720 households in the Pittsburgh, PA area. Of those households, 328 had a school-age child (6–12 years old) present.

Of the school-age sample, 56 were classified as "hungry," 161 were classified as "at risk for hunger," and 111 were classified as "not hungry." The results of the study revealed that children identified as "hungry" had more frequent incidences of psychosocial dysfunction as measured by the *PSC* form (21% of children classed as "hungry," 6% of children who were "at risk for hunger," and 3% of children who were classed as "not hungry"). Children who were classed as "hungry" also displayed more irritability and aggressive behavior than did low-income children who were classed as "not hungry." The study found that hunger status was somewhat related to past academic failure (i.e., repeating a grade) and that children classed as "hungry" were more likely than other children to be receiving special education services such as tutoring.

Although associations between hunger and psychosocial and academic problems in low income children can be found, it is important to recognize other possible contributing factors. Kleinman, et al., point out that there are "multiple stressors" in low income families that could increase their risk of developing psychosocial problems compared to children from more socio-economically advantaged families. These studies point to the need for researchers to sort out the numerous issues facing children from low income families and to find ways

to determine how hunger and other factors affect academic achievement. In addition, studies on children from other economic backgrounds are needed to determine what effect the School Breakfast Program has on their learning and academic performance.

Dickie and Bender (1982) conducted one such study. Using 55 London boarding school students (average age 17 years old), they attempted to show that pupils who habitually omit breakfast show decreased school performance versus students who normally consume a morning meal. Students were divided into an experimental group and control group. Both groups were tested on sentence verification, addition, and short-term memory on three consecutive days in order to establish baseline data. The following week the experimental group was instructed to omit breakfast, while the control group ate breakfast as usual. Both groups were again tested on the same tasks. In this retest phase, no significant differences were found on test performance between the two groups. However, due to the small sample size (55 students) and average age of the sample, it is hard to generalize these findings.

The School Breakfast Program and Short-term Effects on Cognition

In order to explore the possible short-term effects of eating school breakfast, several studies on cognition have been published. Simeon, et al. (1989) examined the effects of missing breakfast on cognitive functions of three nutritional groups (n=30 for each group) of children aged 9–10½ years old in Jamaica: stunted children (identified as 2SD of the National Center for Health Statistics references), non-stunted controls, and previously severely malnourished children (identified as having been admitted to the hospital for severe malnutrition during the first two years of life). The investigators felt stunting was the best indicator for the duration of undernutrition experienced by the child. Also, for further analysis, children were divided into additional groups, such as wasted and non-wasted.

Wasting is defined as weight-for-height 90% below the expected value and is an indicator of recent nutritional experiences. These children were admitted to an overnight ward on two occasions. The following morning of their stay, the children were given a standard breakfast. The control groups were given a cup of tea sweetened with aspartame. Shortly after breakfast, cognitive tests were administered. Cognitive tests included three subtests of the *Wechsler Intelligence Scale for Children:* arithmetic, digit span and coding. In addition, two subtests from the *Clinical Evaluation of Language Functions* were used which included the fluency and listening comprehension subtests. The *Matching Familiar Figures Test (MFFT)* and the *Hagen's Central-Incidental task (HCI)* were also used.

The results of the testing indicated that the control groups, who received only tea for breakfast, did not perform significantly worse on the cognitive tests than those who received breakfast. On the other hand, the previously malnourished children and the stunted children performed significantly worse compared to the non-stunted children on the fluency and coding tests. The control group actually performed better than the other groups on the arithmetic and the *MFFT* easy-items test.

When wasting was used as a factor, no significant differences were found in arithmetic, fluency, coding, or the digit-span forward tests. However, wasted children performed significantly worse in the fasted states in the digit-span backwards test and the *MFFT* easy-items test. No significant differences were seen on the listening comprehension test, the *MFFT* hard-items test, or the HCI task. The control group did not experience any adverse effects from missing breakfast on any of the cognitive tests. However, wasted children were adversely affected in several of the tests, as mentioned, regardless of the nutritional group that they were assigned to. The authors concluded that undernourished children were more susceptible to the adverse effects of skipping breakfast (Simeon, et al., 1989).

Lopez, Andraca, Perales, Heresi, Castillo, & Columbo (1993) examined the cognitive effects of skipping breakfast among 279 fourth, fifth, and sixth graders living in the outskirts of Santiago, Chile. All subjects were considered low income, and ranged in age from 8 to 10 years old. Subjects were composed of 106 nutritionally normal children [those with a Height/Age (H/A) and Weight/Age (W/A) between 95% and 115% of the 50th percentile of the National Center for Health Statistics (NCHS)]. In addition, 73 wasted children (W/H < 91% of 50th percentile of NCHS standards), and 100 stunted (H/A < 92% of 50th percentile of NCHS standards) were included in the subject sample. Subjects were then randomly assigned to a fasting condition or a breakfast condition. Those in the fasting condition had not eaten for 14 hours (including the previous night, time spent sleeping, and the morning) prior to being assessed in the morning. Those in the breakfast condition had also fasted for 14 hours, but were fed a standard breakfast prior to the morning assessment.

Three specific cognitive tests were employed in the study: a memory test, domino test, and attention test. The memory test was a modification of the *WISC* digits subtest, having students observe a screen display of progressively longer, randomly generated digit strings. Pupils were then supposed to reproduce each sequence on the screen. The domino test had students fill in the blank pieces after seeing a screen with a logical arrangement of domino pieces. Finally, the attention test had students observe a screen showing three consecutive series of 24 geometrical figures, then quickly recognize key figures among the series.

Analysis of the results found no consistent link between study condition and cognitive test performance for any of the three nutritional categories of pupils. Stunted children in both the breakfast and fasting condition obtained significantly lower scores in the attention test. Overall, however, the results suggest that breakfast consumption does not affect cognitive test performance when children are motivated to do well on short-term tasks.

One problem with this study was the fact that the tests were considerably motivating for the students, perhaps because they were administered via computer. It would be unwise to generalize the findings to conditions where students are less motivated to succeed, such as routine and natural classroom exercises. In addition, the tests only measured short-term test performance. Long-term performance should have been measured as well, in order to examine the lasting effects of breakfast.

In congruence with the aforementioned study by Simeon, et al. (1989), Chandler, Walker, Connolly, & Grantham-McGregor (1995) studied the short-term effects of receiving school breakfast on children's cognitive functions. The authors utilized a digit span test, visual search test, verbal fluency test, and a speed of information processing test to assess cognitive functioning. The study's population included Jamaican children in grades three and four with subgroups of undernourished children, identified as < -1 SD of the National Center for Health Statistics reference data and adequately nourished children. The study used a crossover design so that each child was compared with him/herself after receiving or not receiving breakfast. A standard breakfast was administered at school while the control group was given a quarter of an orange. Cognitive testing began a half hour after breakfast was given.

The results of the testing mirrored the results from the study conducted by Simeon, et al.: adequately nourished children did not exhibit a significant improvement in the cognitive test scores after receiving breakfast, but the undernourished children performed significantly better on the verbal fluency test. There were no differences seen in the other cognitive tests in the various groups of children (Chandler, et al., 1995).

This study was conducted in a less controlled environment than the study conducted by Simeon, et al. The children were told not to eat after their evening meal the day before the testing, but they were not under observation. Despite this, results were similar to the findings of Simeon, et al.

The cognitive benefits of school breakfasts compared to home-prepared breakfasts have also been examined. Worobey and Worobey (1999) investigated the cognitive benefits of school breakfasts in preschools. Using predominantly Caucasian middle-class children between three and five years old, the authors assessed changes in cognitive test performance over a six-week period of school breakfast administration. An experimental group consisting of pupils participating in a School Breakfast Program was compared with a control group of children who consumed breakfast at home.

Prior to program implementation test results were obtained for both groups in order to establish baseline data. No significant performance differences were found between groups in the initial test phase. After six weeks, students in the School Breakfast Program group displayed superior performance on two of four cognitive tests compared to the control group. It was noted that the two tests in which participants scored higher during the retest phase were visual perception and discrimination and classification skill assessments administered via computer. According to the authors, it is possible that compared to pencil and paper tests, computer assessments evoke a higher degree of motivation among students, enhancing the effects of a nutritious breakfast. However, the small number of subjects (16) used in this study makes it hard to generalize the findings, as does the fact that the subject sample was composed of predominantly Caucasian middle class children.

The impact of school breakfast on cognitive functions and mood effect has also been studied (Cromer, B.A., Tarnowski, K.J., Stein, A.M., Harton, P., & Thornton, D.J., 1990). Cromer, et al. looked at a group of 9th grade adolescents from a generally middle class background in Ohio. The cognitive tests used in

this study differed from Chandler, et al. and Simeon, et al. studies. They included the *Peabody Picture Vocabulary Test-Revised (PPVT-R)*, the *Rey Auditory-Verbal Learning Test (AVLT)*, the *MFFT* (used in the Simeon, et al. study), the *Continuous Performance Test (CPT)*, and the *State-Trait Anxiety Inventory for Children (STAIC)*. The students were admitted to a research center the night before testing in order to control their morning in-takes. The test group was given a standard breakfast while the control group was given diet gelatin and a powdered drink sweetened with saccharin. Cognitive and metabolic testing began one hour after the students received breakfast. The results of the testing indicated there were no significant differences in cognitive functioning between the group that received the standard breakfast compared to the group that received the low calorie breakfast (Cromer, et al., 1990).

Unlike the previously mentioned studies, there were no children in this group who were nutritionally at risk. In addition, the subjects used were slightly older than the subjects in the other studies. It may be that older children are not as affected by the absence of breakfast, or that children with adequate nutrition are not as susceptible to the short-term effects of missing breakfast.

Building on the previous study by Chandler, et al., Grantham-McGregor and Walker (1998), two of the investigators in the Chandler, et al., study, made use of the crossover design again in order to look at the effects of school breakfast on cognitive function and classroom behavior in adequately nourished and undernourished 8–11 year olds in grades three and four in four Jamaican schools. Cognitive function tests included visual search, digit-span forwards, categoric fluency, and speed of decision making. Behavior was measured by investigator observation in the classroom for both control and test groups. After the children arrived at school, a standard breakfast was given to the treatment group while only a slice of orange was given to the control groups.

The results were similar to previous studies. Specifically, undernourished children performed significantly better on the fluency test after they had received breakfast, but the adequately nourished children showed no significant change in scores. No other significant differences were seen in the other cognitive test scores for either group. The classroom behavior of the children in two of the four schools actually deteriorated after the children had received breakfast. The children in one of these schools talked more during classroom instruction, while children in the second school were less attentive during the set-to-task. Only one of the four schools experienced a significant increase in attention to task after eating breakfast.

The investigators posited that behavior could be influenced by the structure of the schools. The four schools did not have the same classroom organization, which made direct comparisons difficult. In some of the schools, children shared desks, some classrooms had more than one class in the room, and some classrooms were very noisy. Differences in classroom facilities such as these could certainly have an effect on behavior (Grantham-McGregor, 1998). In any case, this decline in behavior after breakfast appears to have been an isolated event, as no other studies reported similar findings.

The previously mentioned studies all examine the effects of breakfast omission on cognitive functions. However, it is difficult to draw one conclusion regard-

ing the effects of breakfast omission on cognitive functions due to the varying assessments, conditions, and results of the aforementioned studies. There is a need for studies in which testing conditions are equal, control over children's dietary intake before they arrive at school exists, and a standard group of cognitive tests are employed. These consistencies would make studies in this area more comparable to one another, and perhaps lead to some definitive answers on what the short-term cognitive effects of breakfast are for children.

Timing, Setting, and Type of Breakfast Effects

Vaismar and his colleagues took the question of cognitive effects of breakfast one step further in examining the effects of breakfast timing on cognitive functions in Israeli elementary school children. The children came from a variety of socio-economic backgrounds, and ranged in age from 11–13 years old (Vaismar, N., Voet, H., & Vakil, E., 1996). The cognitive tests used included the *Rey Auditory-Verbal Learning Test,* the revised memory subtest form the *Wechsler Memory Scale,* and two versions of the *Benton Visual Retention Test.* One-third of the subjects were controls and were not given any information regarding breakfast habits. The test group was told not to eat breakfast at home before coming to school and they either received breakfast at school or breakfast was omitted.

Children who ate breakfast at school scored significantly higher than those who ate breakfast at home or who did not eat breakfast at all in most of the tests including five subtests of the *Rey AVLT* and both the Wechlser test and the Benton test. In addition, children who ate breakfast at school scored significantly higher than kids who ate breakfast at home in the delayed recall and the temporal order subtests of the *Rey AVLT.* There were no significant differences between children who did not eat breakfast at home compared to those who ate it at home or school in the delayed recall, immediate learning and temporal order subtests of the *Rey AVLT.*

Overall, the results indicated the children who ate breakfast at school had significantly higher cognitive test scores compared to those who ate breakfast at home or had no breakfast at all. The investigators argued this indicated that breakfast might have positive short-term cognitive effects. No connections were made between children from different socio-economic backgrounds and cognitive abilities. A problem with the study design was that the children who ate breakfast before they came to school undoubtedly had different amounts of different foods. The need to test breakfast timing and short-term cognitive effects may be important; however, a well-designed format is also necessary.

A 1995 review of studies looking at the effects of breakfast on cognition indicated that, regardless of the research setting of the study, undernourished, at risk children showed improvements in cognitive performance when provided with proper nutrients (Pollitt, 1995). Chandler, et al. (1995), Grantham-McGregor, et al. (1998), Murphy, et al. (1998ab), and Kleinman, et al. (1998) supported this finding. Although the results are not as clear for well-nourished children, reports from schools indicate that benefits like decreased tardiness rates and improved socialization among students would indicate a positive effect of the School Breakfast Program. A more recent review of some of the

breakfast studies by Pollitt & Matthews (1998) concluded that school breakfast increases school attendance and contributes to a healthy diet.

In general, there do not seem to be any adverse effects on children who eat breakfast at school. The studies reviewed in this paper would indicate that the School Breakfast Program does have positive effects such as decreases in absence/tardiness rates (Meyers, et al., 1989; Murphy, et al., 1998ab; Sampson, 1992; Wahlstrom, 1997; and Cook, et al., 1996). Several of the studies indicated a significant improvement in math scores (Simeon, et al., 1998; Murphy, et al., 1998a; and Sampson, 1992) with two of the reports finding no significant improvements (Meyers et al., 1989, and Simeon et al., 1989). In addition, three of the cognitive studies that looked at the effects of breakfast on verbal fluency found that breakfast eaters' scores significantly improved on that cognitive test (Simeon, et al., 1989; Chandler, et al., 1995; and Cromer, et al., 1990). The report by Wahlstrom, et al. (1997) indicated that children's readiness to learn was improved by School Breakfast Program participation.

The studies cited in this report provide a good base of evidence from which to build support for the School Breakfast Program and some of the benefits it provides for participating children. The overarching themes of School Breakfast Program research are that school breakfast programs participation may reduce absentee and tardiness rates, increase cognitive and academic functioning, and promote social interaction among youth.

It may be the case that school breakfasts, per se, are not contributing to these benefits (Murphy et al., 1998). Perhaps breakfast programs increase attendance because children have no other routes to getting fed. Attendance may be the influencing factor, rather than breakfast. The increase of social interactions among breakfast consumers may lead to better behavior and academic functioning throughout the day. However, some argue that as long as the program proves beneficial to students, the exact nature of the relationship between breakfast and positive outcomes should hardly matter to schools, parents, and children.

The benefits of the School Breakfast Program are more salient among undernourished children who are living in poverty. It is therefore important to look closely at implementing the School Breakfast Program in the schools that need it most. Youth who are under nourished will be less likely to exploit the broad range of academic benefits offered by our schools. In turn, this contributes to them being less likely to become members of the work force and positively adding to society as a whole. Therefore, the effects of undernutrition cost the public in the form of special education services in schools, welfare, and lost community contributions (Center on Hunger, Poverty, and Nutrition Policy, 1998).

Future research should focus on measuring the effects of nutritious School Breakfast Program meals in well-designed studies that include diverse groups of children from both low-income and economically advantaged backgrounds. Outcome measures such as academic performance, socialization, attendance, behavior, and attentiveness should continue to be studied considering their relevance to the learning environment.

Chapter 1: INTRODUCTION

Various states and school districts have been experimenting with breakfast programs as a means of improving school outcomes. In Minnesota, schools have been experimenting with serving breakfasts for more than seven years. Minnesota public schools serving breakfast can be grouped into two categories. First, there are those schools participating in the Fast Break to Learning Program (*Fastbreak* schools). All students in *Fastbreak* schools, also called universal free breakfast schools, may at the school's discretion, receive a school breakfast at no charge. The second group of schools serve breakfast on a sliding fee scale, with the fee depending on family income (*Control* schools). In this study, the *Control* schools were serving breakfast on a sliding fee scale, but were eligible to participate in the Fast Break to Learning Program.

Methodology

There were three primary data sources for this study. The first was survey data. Two different surveys were mailed; one to principals, and one to food service personnel at the *Fastbreak* and *Control* schools. The surveys were mailed by The Department of Children, Families & Learning to 501 schools that met the state requirements for eligibility for entering the Fast Break to Learning Program in 1999 (188 *Control* and 313 *Fastbreak*). Survey content included questions regarding participation in, administration of, and perceived benefits of and barriers to school breakfast programs.

Data was collected via mail survey from April 28 to June 30, 2000. The surveys were closed for tabulation with 460 usable responses from food service personnel (a 92% response rate), and 409 usable responses from principals (an 82% response rate). The School of Public Health, Division of Epidemiology at the University of Minnesota completed the data collection and data entry.

The second data source used was the test file containing *Minnesota Comprehensive Assessment* achievement data for Minnesota schools in 1998–99 and 1999–00. Third grade mathematics and reading scores and 5th grade mathematics, reading, and writing scores were used for analysis.

The third source of data was a student enrollment file, providing enrollment and attendance data at the various schools during the 1998–99 and 1999–00 school years. This file was provided by the Department of Children, Families & Learning.

Group Demographics

The demographic composition of the 3rd and 5th grade groups analyzed in the achievement portion of the study are very similar. There was also little variation in demographics from 1999 to 2000. (See Tables A.1 and A.2 in the Appendix).

The *Fastbreak* and *Control* schools, however, have different student compositions.

Fastbreak school students were most often in Minneapolis or St. Paul schools, while *Control* school students were evenly distributed between suburban and outstate schools, with only 4% in Minneapolis/St. Paul. The vast majority of Minneapolis schools joined the Fast Break to Learning Program; therefore there were almost none left for the *Control* group. As compared to *Control* schools, *Fastbreak* schools tended to have higher percentages of limited English proficiency (LEP) students, higher percentages of low-income students eligible for free or reduced-price lunch, and more students new to their district in the last year. Special Education student concentrations were roughly similar across the two groups.

Fastbreak and *Control* schools were compared on several variables: (1) survey responses regarding the administration of the School Breakfast Program, (2) participation rates of students in the School Breakfast Program, (3) attendance, and (4) statewide achievement test scores of 3rd and 5th graders in reading, mathematics, and writing.

Because the *Fastbreak* schools entered the program in Fall 1999, the changes in breakfast participation, attendance, and achievement from academic year 1998–99 (the year prior to implementation of universal free breakfasts) to 1999–00 (the year of universal free breakfast implementation) was examined. The intention was to see how gains in the schools switching to a universal free breakfast program (*Fastbreak* schools) compared to the gains in schools retaining a sliding fee program for school breakfast (*Control* schools).

For the analyses involving attendance and achievement, a third group of schools was added, consisting of schools that are not serving breakfast through any program to students in their schools (*No Breakfast* schools). The *No Breakfast* schools were chosen from the same districts as the *Control* schools. Selecting schools with similar poverty levels was done whenever possible. However, this was difficult in smaller districts, as the number of schools is limited. The demographics of the third group of schools, the *No Breakfast* schools, were more similar to the *Control* schools than to the *Fastbreak* schools. Since the study was designed primarily as a comparison of schools with the two different kinds of breakfast programs, the focus throughout is on the comparison of *Fastbreak* and *Control* schools.

The second chapter of this report examines the implementation and administration of the School Breakfast Program through survey results. It examines questions such as: How has the program been implemented? What benefits does the program offer? What barriers existed, or still exist, in implementing the program?

Breakfast and lunch program participation rates are the focus of Chapter 3. Participation and gains in participation were analyzed by comparing *Fastbreak* and *Control* schools. The gain in participation (% increase) between 1998–99 and 1999–00 is also analyzed according to the time at which breakfast was served in the schools. That is, we compared the participation rate gain in schools that served breakfast before school against the participation rate gains in schools that served breakfast during school and those that served it at both times.

Chapter 4 presents student achievement in 3rd and 5th grade based on the *Minnesota Comprehensive Assessment* in reading, mathematics and writing. These results are broken down by category of school (*Fastbreak* or *Control*) as well as by the school's scheduled time for breakfast (before school, after school starts, or both).

Attendance is highlighted in Chapter 5; Chapter 6 summarizes our conclusions.

Chapter 2:
PROGRAM ADMINISTRATION

Two different versions of the survey were mailed to public elementary schools in Minnesota. One version was mailed to food service personnel and another to principals. A total of 501 schools met state requirements for eligibility for entering the Fast Break to Learning Program in 1999; these were the schools included in the study. Of the 501 schools studied, 313 were *Fastbreak* schools and 188 were *Control* schools. The overall response rate was 92% for food service personnel and 82% for principals. This chapter is a compilation of the responses from both of these groups regarding the implementation and administration of the School Breakfast Program in their schools.

Implementation and Promotion

According to food service personnel who responded to the survey, those most involved in the implementation of the Fast Break to Learning Program were school food authorities, school food service managers, and principals. Very few respondents reported involvement from teachers or parents in implementing the program.

Principals and food service personnel reported a variety of ways in which information was provided to parents, students, and teachers about the breakfast program in their school. According to food service personnel, the majority of parents were informed of the program through a school newsletter or another district publication. According to principals, students were also most often informed about the program from a school newsletter. Other students learned about it from their parents. Finally, principals reported that teachers were most often informed about the School Breakfast Program during a teacher meeting. However, teachers also counted on the school newsletter for information regarding the implementation and administration of the program.

Characteristics of the Program

Although schools participating in the Fast Break to Learning Program are expected to offer breakfast to students for little or no charge, government funding covers only 75% of the total cost. Therefore, there are no set standards for what price students should be charged for breakfast. However, 79% of *Fastbreak* schools reported they did not charge anything for breakfast, 15% charged between $0.10 and $0.50, and 6% charged students more than $0.50 for breakfast.

Control schools were receiving no Fast Break to Learning Program assistance in funding school breakfast. On average, *Control* schools reported that they charged full-paying students $0.79 for breakfast, and reduced-price students $0.31. Only 2% reported they were not charging students for breakfast.

Food service personnel were asked whether or not they use a computerized system at the student point of sale for breakfast. Seventy percent of respondents reported this process is computerized at their school. When asked the name of the system that was used, the most common response was PCS Revenue Control (31%).

According to food service personnel, the most common meal preparation used for school breakfast programs was full preparation in an on-site kitchen (69%). Approximately one-quarter of respondents indicated their school used heat-and-serve methods. Breakfast meal preparation methods varied between *Control* and *Fastbreak* schools. *Control* schools were more likely to use full preparation than were *Fastbreak* schools (83% and 59%, respectively). On the other hand, *Fastbreak* schools were twice as likely to use heat-and-serve methods than were *Control* schools (30% compared with 14%).

Nearly all (96%) *Control* schools used a traditional cafeteria line serving method for school breakfasts. Eighty-seven percent of *Fastbreak* schools used this method, while 10% had breakfasts delivered to the classroom. The remaining schools indicated they used bag or pre-packed meals or some other method not mentioned in the survey to administer breakfasts.

When principals were asked who provided supervision during breakfast, those in *Fastbreak* schools were significantly more likely than those in *Control* schools to have teachers supervising during breakfast (23% compared to 5%). However, in both *Fastbreak* and *Control* schools, aides were the most likely to supervise during breakfast, followed by food service personnel. When the question of who was providing supervision was examined for schools that served breakfast before school versus schools that served it after school started the results were different. Two-thirds of the schools that served breakfast after school starts reported that teachers supervised the students. Supervision by an aide, on the other hand, was more likely in schools that served before school.

Where and when breakfast is served is an important question. A skeptic of the School Breakfast Program might argue that one of the primary problems with the program is that it takes away from class time. This would presumably be a greater concern in schools where breakfast is served during the school day as opposed to schools where breakfast is served before school.

Table 2.1 Where and When School Breakfast is Served

	Overall	Control	Fastbreak
Cafeteria, before school	84%	96%	78%*
Classroom, before school	4%	1%	5%*
Cafeteria, after school starts	23%	5%	33%*
Classroom, after school starts	11%	2%	16%*
Other	1%	2%	1%

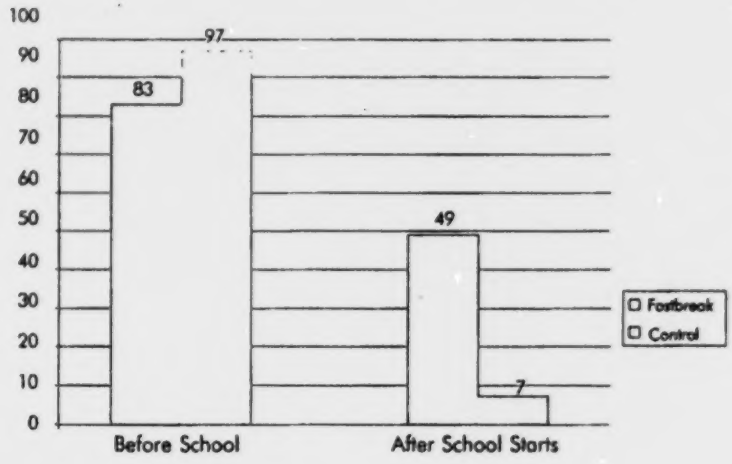
* Difference is statistically significant ($p \leq .05$); Base: respondents answering this question; multiple answers to the question were accepted (i.e., respondents could choose more than one of the above options).

Food service personnel were asked about where and when students are served breakfast. The greatest percentage of all schools served their breakfasts in the cafeteria before school. *Fastbreak* schools were significantly more likely than *Control* schools to serve breakfast in the cafeteria or the classroom after school starts (49% compared to 7%). Table 2.1 and Figure 2.1 (p. 27) illustrate where and when breakfast was served.

Schools serving breakfast after school starts were compared with those who served breakfast before school to determine if there

were any significant differences in breakfast participation, student achievement, barriers to program implementation, and other activities during breakfast. Differences in participation rates and student achievement between these two groups are discussed in Chapters 3 and 4. Differences regarding barriers and activities are discussed in the following two sections of this chapter.

Figure 2.1 Percentage of Schools Serving Breakfast Before School or After School Starts



Activities During Breakfast

Table 2.2 shows the other activities that school principals reported as taking place during school breakfast. With the exception of socializing, *Fastbreak* schools were significantly more likely than *Control* schools to have other activities take place during breakfast. They were more likely to take attendance, make announcements, explain the day's schedule, have class discussion, and/or read a book aloud during breakfast.

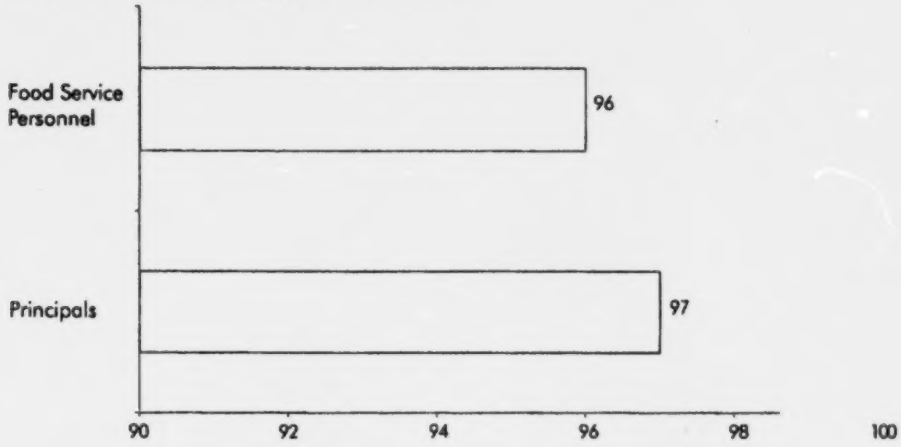
Schools where breakfast was served during school were more likely than schools that served breakfast before school to report that several activities take place during breakfast. They were more likely to take attendance, make announcements, explain the day's schedule, read books, and return assignments.

Table 2.2 Activities that Take Place During School Breakfast

	Overall	Control	Fastbreak
Socialize	94%	93%	95%
Take attendance	13%	8%	16%*
Make announcements	13%	7%	17%*
Explain the day's schedule	8%	3%	12%*
Discussion	7%	3%	10%*
Book read aloud	7%	3%	9%*
Assignments returned	6%	4%	7%
Other	17%	10%	21%*

* Difference is statistically significant ($p \leq .05$); Base: respondents answering this question; multiple answers to the question were accepted (i.e., respondents could choose more than one of the above options).

Figure 2.2 Percentage of Food Service Personnel and Principals Who Think there are Benefits to Providing the School Breakfast Program



Benefits and Barriers

Virtually all respondents reported that there are benefits to providing the School Breakfast Program to students (96% of food service personnel, and 97% of principals; see Figure 2.2, above). When asked about more specific benefits to the program, the benefits most often reported by principals were that students were more attentive to learning tasks, and according to principals, parents welcomed the service. Principals at *Fastbreak* schools were more likely than those at *Control* schools to think that decreased tardiness (40% and 21%, respectively) and decreased negative behavior (46% and 32%, respectively) were two of the greatest benefits of the program.

Table 2.3 Percentage of Schools for Which Barriers to the School Breakfast Program Still Exist

	Overall		Control		Fastbreak	
	FS	P	FS	P	FS	P
Bus schedule	35%	20%	45%	21%	30%*	19%
Lack of time before the school day	29%	23%	38%	23%	25%*	23%
Takes away from the instruction day	24%	18%	21%	12%	25%*	22%*
Lack of parent support	17%	5%	22%	4%	15%*	5%
Perception that school breakfast is only for students receiving free and reduced price lunch	22%	13%	33%	19%	15%*	9%*
Additional supervisory staff needed	16%	18%	20%	23%	14%	15%*
Additional custodial staff needed	8%	10%	12%	9%	6%*	11%
Students perceive school breakfast as not socially acceptable	12%	4%	17%	4%	9%*	4%
Other	36%	21%	36%	22%	36%	21%

*Difference is statistically significant ($p \leq .05$); Base: Respondents answering this question. Multiple answers to the question were accepted (i.e. respondents could choose more than one of the above options). FS=Food service personnel; P=Principals.

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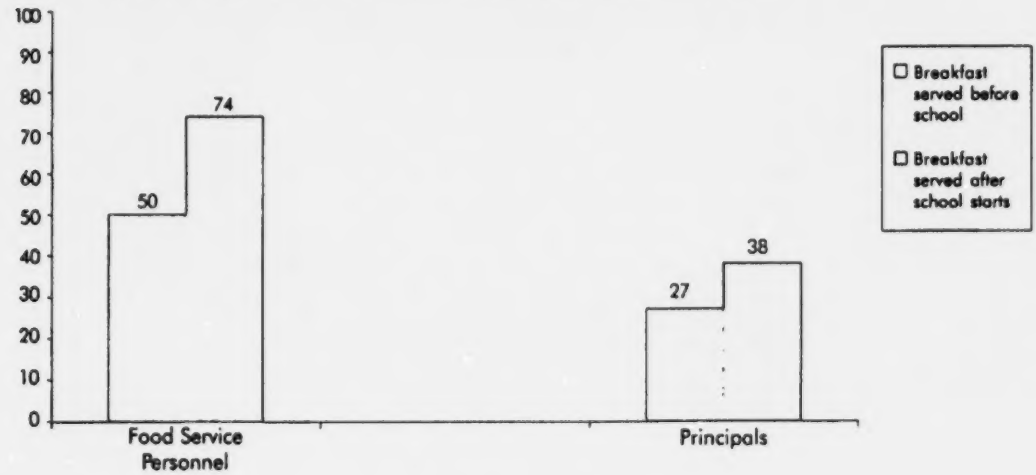
Approximately one-third of both *Control* and *Fastbreak* schools overall reported barriers to implementing the School Breakfast Program. Principals and food service personnel at both *Control* and *Fastbreak* schools responded differently to questions about barriers to implementation of the School Breakfast Program. Of the eight barriers asked about in the survey, less than one-fourth of principals reported that any barrier to implementing the program still exists. Food service personnel, on the other hand, were more likely to report barriers. Table 2.3 (page 28) shows the specific barriers asked about in the survey and the results for schools that reported that these barriers still exist.

The barrier reported by the greatest percentage of principals was lack of time before the school day (23%). Food service personnel most often reported bus scheduling (35%). *Fastbreak* schools were more likely than *Control* schools to think that one barrier that still exists is that the program takes away from instruction time. *Control* schools were more likely than *Fastbreak* schools to think that the perception that school breakfast is only for free or reduced-price lunch status students and the need for additional supervisory staff are barriers that still exist.

Principals and food service personnel from schools that served breakfast before school started were less likely to report barriers than schools that served breakfast after school started (Figure 2.3).

Figure 2.3 Percentage of Food Service Personnel and Principals Who Think there are Barriers to Implementing the School Breakfast Program, by When Breakfast is Served



Chapter 3: PARTICIPATION

Just because a school offers a breakfast and lunch program to students does not mean that all students will participate. There are a number of possible reasons why students may not participate in a school breakfast or lunch program. Some students eat breakfast at home before coming to school. Other students may not participate in the School Breakfast Program because of some of the barriers mentioned in Chapter 2. There are also several possible reasons why a student may not participate in a school lunch program. Students may go home for lunch, or bring a bag lunch from home. Therefore, one should not assume that all children who are eating breakfast and/or lunch are doing so through a school program. Offering the program is not enough, in order to determine its success, there must be participation.

Breakfast Participation

Tables 3.1–3.3 show the percentage of attending students participating in the School Breakfast Program and the percentage point gain between the 1998–99 and 1999–00 school years. (The results in Tables 3.1–3.3 show the average percentages of students in attendance that participated in breakfast each day. A technical report showing the average percentage of enrolled students who participated each day is also available from the authors of this report.)

Overall, approximately one-third (32%) of total attending students participated in the School Breakfast Program during the 1998–99 school year. Participation increased by five percentage points in 1999–00 to a rate of 37%.

The percentage of students participating in the School Breakfast Program was significantly higher at *Fastbreak* schools than at *Control* schools in both 1998–99 and 1999–00. Overall, breakfast participation increased by seven percentage points from 1999 to 2000 at *Fastbreak* schools, compared to only two percentage points at *Control* schools. The increase was greatest for students eligible for

Table 3.1 Percentage of Students Participating in the School Breakfast Program: 1998-99

	Overall	Control	Fastbreak
Total attending students	32%	17%	39%*
Attending students eligible for free lunch	50%	40%	54%*
Attending students eligible for reduced-price lunch	28%	20%	32%*

* Difference is statistically significant ($p \leq .05$).

Table 3.2 Percentage of Students Participating in the School Breakfast Program: 1999-00

	Overall	Control	Fastbreak
Total attending students	37%	19%	46%*
Attending students eligible for free lunch	53%	42%	58%*
Attending students eligible for reduced-price lunch	36%	21%	44%*

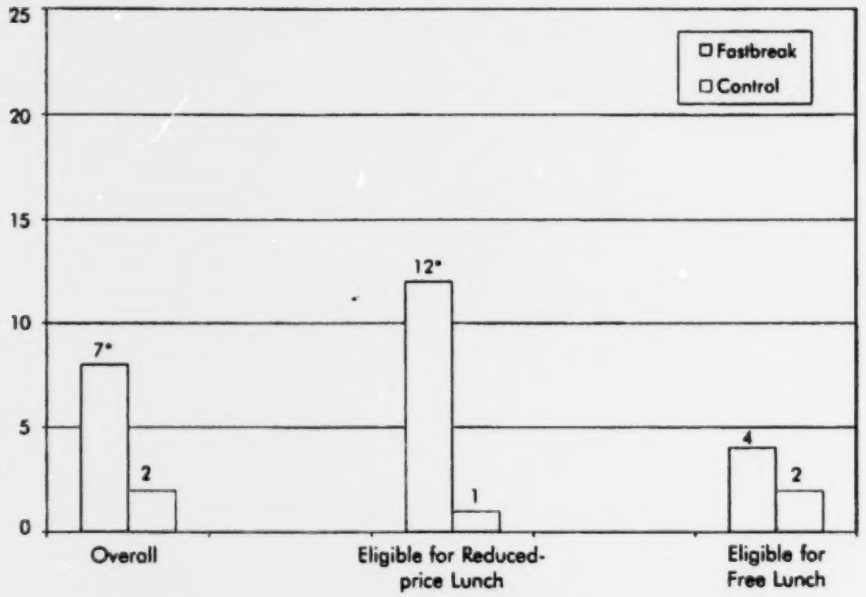
* Difference is statistically significant ($p \leq .05$).

Table 3.3 School Breakfast Program Participation Change from 1998-99 to 1999-00

	Overall	Control	Fastbreak
Total attending students	+5	+2	+7*
Attending students eligible for free lunch	+3	+2	+4
Attending students eligible for reduced-price lunch	+8	+1	+12*

* Difference is statistically significant ($p \leq .05$).

Figure 3.1 Gain in School Breakfast Program Participation from 1998–99 to 1999–00

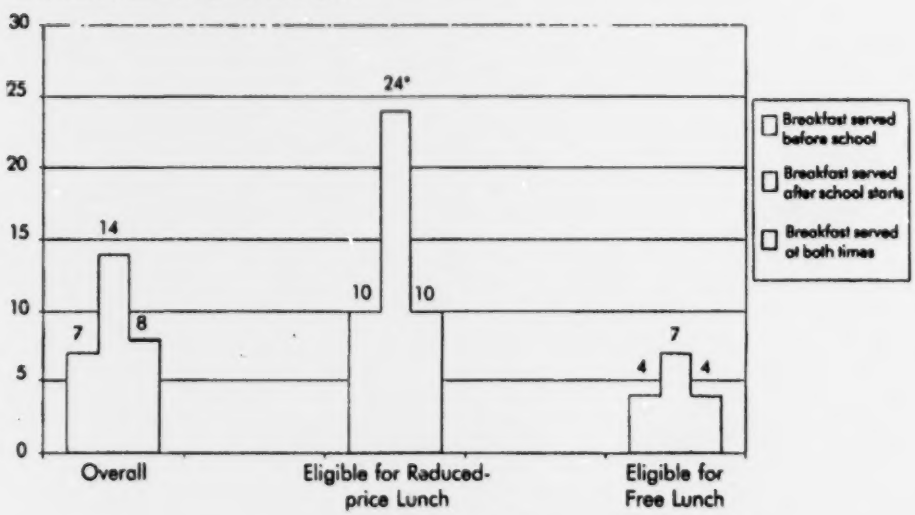


*Significant differences exist between Fastbreak and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools).

reduced-price lunch who were attending *Fastbreak* schools (12 percentage points). See Figure 3.1, above.

Breakfast participation rates were compared between schools that served breakfast before school starts, schools that serve breakfast during school, and schools that served at both times. Overall, participation in the breakfast program was significantly higher in schools where breakfast was served during the school day as opposed to before school. As shown in Figure 3.2, the gains from 1999 to 2000 were also greatest at those schools that served breakfast during the school day. There was a participation gain of 14 percentage points at schools serving breakfast after school starts, compared to a 7 point gain at schools that served breakfast before school, and an 8 point gain at schools

Figure 3.2 Gain in School Breakfast Program Participation from 1998–99 to 1999–00 by When Breakfast is Served



*Significant differences exist between Fastbreak and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools).

serving at both times. The gain was greatest among students eligible for reduced-price lunch at schools that served breakfast after school starts.

Lunch Participation

Advocates of the School Breakfast Program proposed that getting students to participate in school breakfast would also increase their participation in the school lunch program. Therefore, lunch participation was also examined. Tables 3.4–3.6 show the percentage of students eating school lunch.

Overall, the percentage of students participating in school lunch was higher in *Control* schools than in *Fastbreak* schools. However, the percentage point gain in lunch participation between 1998–99 and 1999–00 was higher for *Fastbreak* schools than for *Control* schools. None of these differences were statistically significant, with the exception of students eligible for reduced-price lunch.

Due to outside factors, such as the barriers discussed in Chapter 2, it cannot be assumed that just because a school provides an opportunity for students to eat breakfast, that they will participate. Although school lunch programs have been in place for many years, there is still not 100% participation by students. Whether or not a student participates can be influenced by a number of factors; however according to the findings of this study, there is no evidence that participation in the School Breakfast Program has any influence on students' lunch participation.

Table 3.4 Percentage of Students Participating in the School Lunch Program: 1998-99

	Overall	Control	Fastbreak
Total attending students	80%	81%	79%
Attending students eligible for free lunch	91%	93%	91%
Attending students eligible for reduced-price lunch	84%	90%*	81%

* Difference is statistically significant ($p \leq .05$).

Table 3.5 Percentage of Students Participating in the School Lunch Program: 1999-00

	Overall	Control	Fastbreak
Total attending students	80%	81%	80%
Attending students eligible for free lunch	93%	94%	93%
Attending students eligible for reduced-price lunch	83%	86%	82%*

* Difference is statistically significant ($p \leq .05$).

Table 3.6 School Lunch Program Participation Change from 1998-99 to 1999-00

	Overall	Control	Fastbreak
Total attending students	+0	+0	+1
Attending students eligible for free lunch	+2	+1	+2
Attending students eligible for reduced-price lunch	-1	-4	+1

* Difference is statistically significant ($p \leq .05$).

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Chapter 4: ACHIEVEMENT

Whether or not participation in the School Breakfast Program improves student achievement is a crucial question in determining the success of the program. For the purpose of this study, student achievement was measured by 3rd and 5th grade test scores on the *Minnesota Comprehensive Assessment* in reading, mathematics, and writing (5th grade only).

The descriptive data in the tables in this chapter are raw means and percentages. The means and percentages have not been adjusted to reflect differences between *No Breakfast, Fastbreak* and *Control* schools in student demographics (e.g., the percentage of low-income students). In running statistical significance tests, however, the analyses controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students. In other words, the statistical significance tests did adjust for differences in the student composition of the various schools.

Third Grade Achievement

Tables 4.1 and 4.2 (page 36) show 3rd grade achievement in mathematics and reading. Overall, students at *No Breakfast* schools had the highest average scores, the greatest percentage of students testing at or above level II, and at or above

Table 4.1 3rd Grade Math Achievement by School Breakfast Category

	Overall	No Breakfast	Fastbreak	Control
Schools included in School Breakfast Program study	388	89	171	128
1998-99 average score	1416	1466	1374	1438
1999-00 average score	1438	1484	1398	1460
Total gain in average score (points) from 1998-99 to 1999-00	+22	+18	+24	+22
Percentage of students scoring at or above level II in 1998-99 *	82%	89%	76%	86%
Percentage of students scoring at or above level II in 1999-00	85%	91%	80%	89%
Total gain (percentage points) for students scoring at or above level II from 1998-99 to 1999-00	+3	+2	+4	+3
Percentage of students scoring at or above level III in 1998-99	35%	42%	29%	38%
Percentage of students scoring at or above level III in 1999-00	39%	47%	33%	42%
Total gain (percentage points) for students scoring at or above level III from 1998-99 to 1999-00	+4	+5	+4	+4

*Significant differences exist between No Breakfast, Fastbreak, and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools). More detail on the significance tests can be found in Appendix A.

Table 4.2 3rd Grade Reading Achievement by School Breakfast Category

	Overall	No Breakfast	Fastbreak	Control
Schools included in the School Breakfast Study	386	88	170	128
1998-99 average score	1388	1436	1350	1406
1999-00 average score	1419	1469	1377	1442
Total gain in average score (points) from 1998-99 to 1999-00	+31	+33	+27	+36
Percentage of students scoring at or above level II in 1998-99	72%	81%	64%	76%
Percentage of students scoring at or above level II in 1999-00	76%	85%	67%	80%
Total gain (percentage points) for students scoring at or above level II from 1998-99 to 1999-00*	+4	+4	+3	+4
Percentage of students scoring at or above level III in 1998-99	33%	41%	27%	35%
Percentage of students scoring at or above level III in 1999-00 * *	37%	45%	29%	40%
Total gain (percentage points) for students scoring at or above level III from1998-99 to 1999-00	+4	+4	+2	+5

*Significant differences exist between No Breakfast, Fastbreak, and Control schools ($p \leq .05$); * Significant differences exist between Fastbreak and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools). More detail on the significance tests can be found in Appendix A.

level III in both reading and mathematics. However, the majority of these differences were not statistically significant. *Fastbreak* schools showed the greatest gain in average 3rd grade mathematics score between the 1998–99 school year and the 1999–00 school year. They also had the greatest percentage gain in students scoring at or above level II in mathematics between the two school years. Again, these were not statistically significant differences.

Fifth Grade Achievement

Tables 4.3–4.5 show student achievement on the *MCA*s in mathematics, reading, and writing for fifth graders. Overall, students at *No Breakfast* schools had higher average scores than students in *Fastbreak* or *Control* schools. The average score gain from 1998–99 to 1999–00 was significantly higher for *No Breakfast* schools than for either *Fastbreak* or *Control* schools in mathematics and reading.

However, *Fastbreak* schools had a significantly higher gain (less of a loss) from 1998–99 to 1999–00 in average writing scores. They also had a significantly greater percentage point gain (less of a loss) in

Table 4.3 5th Grade Math Achievement by School Breakfast Category

	Overall	No Breakfast	Fastbreak	Control
Schools included in School Breakfast Program study	361	85	154	122
1998-99 average score	1378	1435	1331	1397
1999-00 average score	1429	1493	1385	1442
Total gain in average score (points) from 1998-99 to 1999-00 *	+51	+58	+54	+45
Percentage of students scoring at or above level II in 1998-99	75%	85%	65%	80%
Percentage of students scoring at or above level II in 1999-00 *	81%	89%	73%	85%
Total gain (percentage points) for students scoring at or above level II from1998-99 to 1999-00	+6	+4	+8	+5
Percentage of students scoring at or above level III in 1998-99	30%	39%	23%	32%
Percentage of students scoring at or above level III in 1999-00 *	38%	50%	30%	39%
Total gain (percentage points) for students scoring at or above level III from1998-99 to 1999-00 * *	+8	+11	+7	+7

*Significant differences exist between No Breakfast, Fastbreak, and Control schools ($p \leq .05$); * Significant differences exist between Fastbreak and Control schools ($p \leq .05$)Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools). More detail on the significance tests can be found in Appendix A.

percentage of students at or above level II, and percentage of students at or above level III from 1998–99 to 1999–00 than either of the other two school categories (Table 4.5).

Overall, with the exception of 3rd grade reading, *Fastbreak* schools showed a greater gain in average scores than *Control* schools (Figure 4.1, p. 38). However, the only differences that were statistically significant were in 5th grade writing.

Student achievement at schools that served breakfast before school was compared with achievement at schools where breakfast was served after school started, and schools that served breakfast at both times. Overall, student achievement was higher in schools where breakfast was served before school as compared to schools that reported they serve breakfast after school starts or both.

However, when percentage point gains between 1998–99 and 1999–00 were examined, schools that served during both times had higher gains

Table 4.4 5th Grade Reading Achievement by School Breakfast Category

	Overall	No Breakfast	Fastbreak	Control
Schools included in School Breakfast Program study	361	82	156	123
1998-99 average score	1409	1466	1360	1434
1999-00 average score	1448	1511	1400	1466
Total gain in average score (points) from 1998-99 to 1999-00 *	+39	+45	+40	+32
Percentage of students scoring at or above level II in 1998-99 *	75%	85%	66%	81%
Percentage of students scoring at or above level II in 1999-00	80%	89%	72%	84%
Total gain (percentage points) for students scoring at or above level II from1998-99 to 1999-000	+5	+4	+6	+3
Percentage of students scoring at or above level III in 1998-99	37%	47%	29%	40%
Percentage of students scoring at or above level III in 1999-00 * *	43%	55%	35%	46%
Total gain (percentage points) for students scoring at or above level III from1998-99 to 1999-00 * *	+6	+8	+6	+6

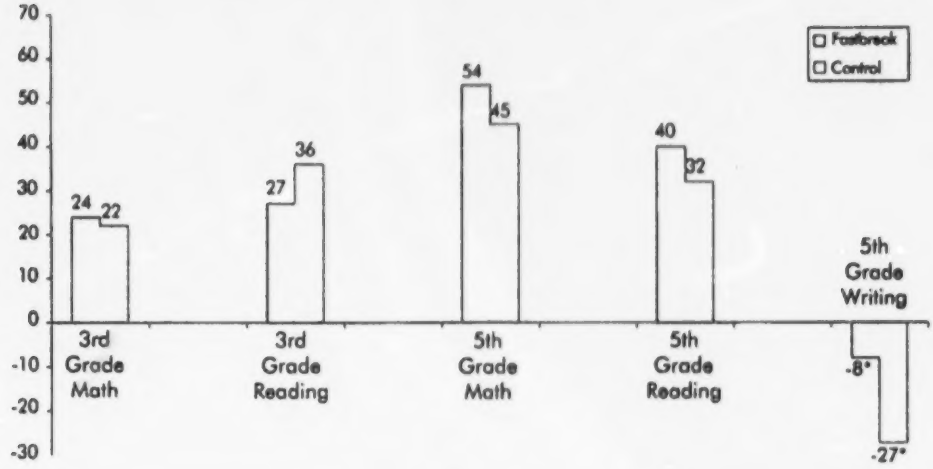
*Significant differences exist between No Breakfast, Fastbreak, and Control schools ($p \leq .05$); * Significant differences exist between Fastbreak and Control schools ($p \leq .05$); Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools). More detail on the significance tests can be found in Appendix A.

Table 4.5 5th Grade Writing Achievement by School Breakfast Category

	Overall	No Breakfast	Fastbreak	Control
Schools included in School Breakfast Program study	362	84	154	124
1998-99 average score	1434	1492	1390	1449
1999-00 average score	1417	1476	1382	1422
Total gain in average score (points) from 1998-99 to 1999-000 * *	-17	-16	-8	-27
Percentage of students scoring at or above level II in 1998-990 * *	92%	96%	89%	94%
Percentage of students scoring at or above level II in 1999-00	90%	93%	87%	90%
Total gain (percentage points) for students scoring at or above level II from1998-99 to 1999-000 * *	-2	-3	-2	-4
Percentage of students scoring at or above level III in 1998-99	39%	47%	32%	41%
Percentage of students scoring at or above level III in 1999-00 *	36%	45%	31%	36%
Total gain (percentage points) for students scoring at or above level III from1998-99 to 1999-00 *	-3	-2	-1	-5

*Significant differences exist between No Breakfast, Fastbreak, and Control schools ($p \leq .05$); * Significant differences exist between Fastbreak and Control schools ($p \leq .05$) Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools). Total gains in this table are negative numbers, i.e., there was a net drop from 1998-99 to 1999-00. More detail on the significance tests can be found in Appendix A.

Figure 4.1 Gain in Average Score from 1998–99 to 1999–00

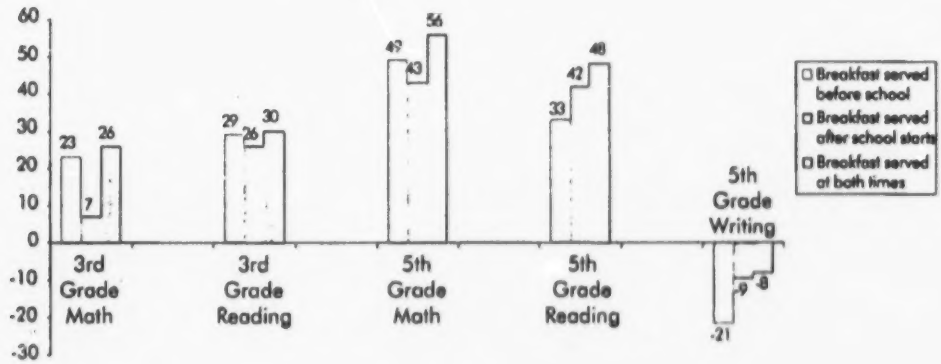


*Significant differences exist between Fastbreak and Control schools ($p \leq .05$). Statistical significance tests controlled for differences in percentages of LEP, special education, eligibility for free or reduced-price lunch, and new students (i.e., for differences in student composition in the various schools).

(see Figure 4.2, below). In 3rd grade, percentage point gains in mathematics and reading scores were higher, overall, at schools that served breakfast both before school and after it starts than at schools where breakfast was served before school or during the school day. The results were the same for 5th grade mathematics, reading and writing.

Given the recent implementation of the programs, further research is warranted to determine whether student achievement might improve for students who participate in the Fast Break to Learning Program.

Figure 4.2 Gain in Average Score by When Breakfast is Served



Chapter 5: ATTENDANCE

Attendance is one of the factors that most influences a student's success in school. Overall, attendance rates in Minnesota are high, particularly in the elementary grades. The results of this study confirm these findings, as rates were fairly high across all groups analyzed, leaving very little room for major improvement. Tables 5.1 and 5.2 show the average attendance rates for grades 1–3 and 4–6 for the 1998–99 and 1999–00 school years.

Although attendance rates went up slightly overall, there were no significant increases or differences between school breakfast categories regarding attendance rates.

Table 5.1 Average Attendance Rates by School Breakfast Category: Grades 1-3

	Overall	No Breakfast	Fastbreak	Control
Total attendance rate 1998-99	95%	96%	95%	94%
Total attendance rate 1999-00	96%	96%	95%	96%
Percentage point gain in total attendance rate	+1	0	0	+2
Attendance rate: students eligible for reduced-price lunch 1998-99	95%	96%	96%	95%
Attendance rate: students eligible for reduced-price lunch 1999-00	96%	96%	96%	96%
Percentage point gain in attendance rate: students eligible for reduced-price lunch	+1	0	0	+1
Attendance rate: students eligible for free lunch 1998-99	94%	95%	94%	93%
Attendance rate: students eligible for free lunch 1999-00	94%	95%	94%	95%
Percentage point gain in attendance rate: students eligible for free lunch	0	0	0	+2

Table 5.2 Average Attendance Rates by School Breakfast Category: Grades 4-6

	Overall	No Breakfast	Fastbreak	Control
Total attendance rate 1998-99	95%	96%	95%	94%
Total attendance rate 1999-00	96%	96%	95%	96%
Percentage point gain in total attendance rate	+1	0	0	+2
Attendance rate: students eligible for reduced-price lunch 1998-99	95%	96%	96%	95%
Attendance rate: students eligible for reduced-price lunch 1999-00	96%	96%	96%	96%
Percentage point gain in attendance rate: students eligible for reduced-price lunch	+1	0	0	+1
Attendance rate: students eligible for free lunch 1998-99	94%	95%	94%	93%
Attendance rate: students eligible for free lunch 1999-00	95%	95%	94%	95%
Percentage point gain in attendance rate: students eligible for free lunch	+1	0	0	+2

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Because of the efforts some metro schools have made to improve attendance, attendance rates for metro schools (Minneapolis and St. Paul) were compared to those of non-metro schools (suburban and outstate). The vast majority of metro schools were part of the *Fastbreak* group; however, they did not make up the entire group. Metro schools had significantly higher gains in attendance rates than non-metro schools in all categories (overall, reduced-price lunch eligible and free lunch eligible). Metro schools showed a percentage point gain of two to three points for grades 1–3 and 4–6, compared to non-metro schools (which showed no gain except for students eligible for free lunch, where there was a percentage point gain of one). (See

Figure 5.1 Gain in Attendance Rates from 1998–99 to 1999–00

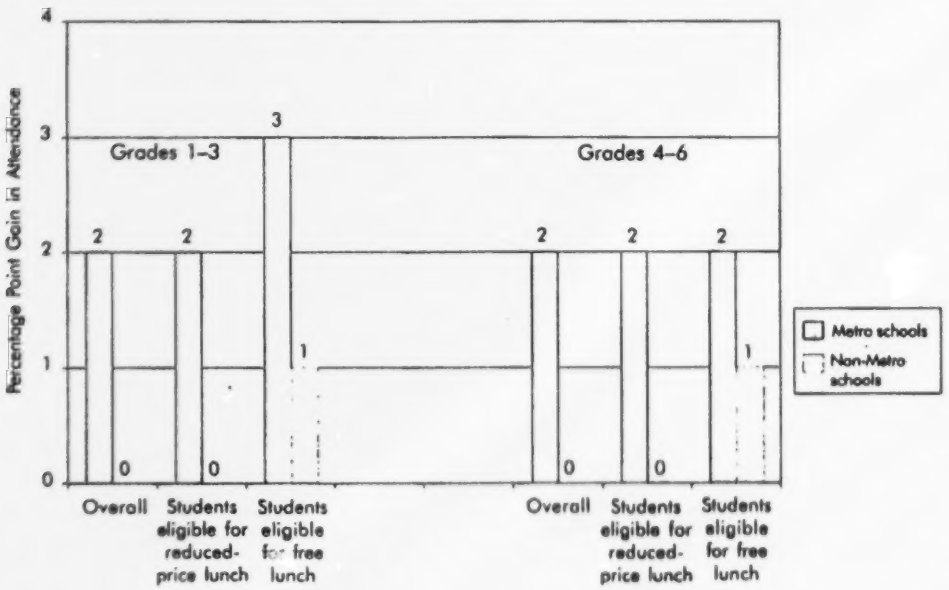

Figure 5.1.)

Although the percentage point gains reported are small, it is important to consider the baseline attendance rates for 1998–99. With baseline attendance rates in the mid-90% range, any gain is difficult to obtain.

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Chapter 6:
SUMMARY AND CONCLUSIONS

Although there were differences in results between *Fastbreak* and *Control* schools, it is important to recognize the recency of the Fast Break to Learning Program when analyzing these findings. This was the first year of the universal free breakfast implementation for *Fastbreak* schools, and it is unclear whether all schools completed the transition entirely in the first year. It is also unclear as to whether or not the effects of the new program have been fully manifested. The findings in this report should be interpreted cautiously and should be considered baseline data.

Administration

Overall, the vast majority (over 95%) of principals and food service personnel surveyed believed there were benefits to providing breakfast in schools.

When asked about barriers that still exist in implementing a breakfast program, the barriers mentioned most often were: (1) bus scheduling, (2) lack of time before the school day, (3) taking time away from the instructional day, and (4) the perception that school breakfast is only for students with free or reduced-price lunch status. However, of the eight barriers asked about in the survey, less than one-fourth of principals mentioned any one particular barrier to implementing the breakfast program in their school.

Participation

Participation rates for breakfast programs were significantly higher for *Fastbreak* schools than for *Control* schools in every student category analyzed, both in 1998–99 and 1999–00. The percentage of *Fastbreak* school students receiving breakfast each day increased by 7 percentage points (from 39% to 46%) from 1999 to 2000, compared to only 2 percentage points (from 17% to 19%) in *Control* schools. The increase was greater among *Fastbreak* school students eligible for reduced-price lunch, where participation increased by 12 percentage points (from 32% to 44%). This compares to a 1 point increase in the *Control* schools (from 20% to 21%) among students eligible for reduced-price lunch.

Achievement

The study used five mensures of achievement: the statewide *Minnesota Comprehensive Assessment* test results in 3rd grade reading, 3rd grade mathematics, 5th grade reading, 5th grade mathematics, and 5th grade writing. For each test, we examined the improvement (or decline) in average scale score, the percentage of students scoring at Level II or above, and the percentage of students scoring at Level III or above.

In four of the five comparisons, with the exception being 3rd grade reading, average scale scores increased more for *Fastbreak* schools (or decreased less in the case of 5th grade writing) than for *Control* schools. However, after controlling for school differences in poverty concentration, LEP concentration, special education concentration, and new student concentration, only the 5th grade writing difference was statistically significant.

Results for gains in the percentage of students scoring at or above Level II were similar. Except for 3rd grade reading in which *Control* schools gained somewhat more, the gains were slightly higher (or the decline slightly less for 5th grade writing) in *Fastbreak* schools in 3rd and 5th grades. After controlling for school differences in poverty concentration, LEP concentration, special education concentration, and new student concentration, only two differences were statistically significant: the greater gain for *Control* schools on the third grade reading examination, and the smaller decline in 5th grade writing for the *Fastbreak* schools.

The increase in the percentage of students scoring at or above Level III was slightly greater for *Control* schools in 3rd grade, and slightly greater (or the decline less in writing) for *Fastbreak* schools in 5th grade. Only the differences favoring *Fastbreak* schools in 5th grade reading and mathematics were statistically significant after controlling for school poverty concentration, LEP concentration, special education concentration, and new student concentration.

Attendance

Average attendance rates in Minnesota elementary grades are generally high. Average attendance rates for 3rd and 5th grade students of varying income levels in the *Fastbreak*, *Control*, and *No Breakfast* schools all ranged from 93–96%. There was no evidence in these data to suggest a larger improvement in average attendance from 1998–99 to 1999–00 among *Fastbreak* schools than among *Control* schools or vice versa.

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APPENDIX A: Demographics

Table A.1 3rd Grade Demographics (1999)

		No Breakfast		Fastbreak		Control	
		Percentage of 3rd Graders	Percentage of Schools	Percentage of 3rd Graders	Percentage of Schools	Percentage of 3rd Graders	Percentage of Schools
TOTAL		N = 7,010	N = 90	N = 12,580	N = 250	N = 9,835	N = 205
Strata	Mpls/St. Paul	2%	4%	57%	51%	3%	3%
	TC Suburbs	61%	33%	7%	6%	27%	24%
	Outstate >2000	19%	18%	19%	20%	36%	30%
	Outstate <2000	18%	45%	17%	23%	34%	43%
LEP	0%	39%	61%	34%	46%	41%	50%
	1-9%	54%	29%	15%	13%	43%	36%
	10-100%	7%	10%	50%	41%	16%	14%
Special Ed	0-9%	27%	28%	29%	28%	28%	26%
	10-19%	72%	67%	70%	68%	71%	70%
	20-100%	1%	5%	2%	4%	1%	4%
F/R Lunch	0-19%	38%	13%	0%	0%	0%	0%
	20-29%	38%	35%	3%	2%	18%	16%
	30-49%	15%	28%	39%	36%	70%	67%
	50-100%	9%	24%	59%	62%	12%	17%
New to District	0-9%	22%	32%	9%	12%	18%	22%
	10-19%	60%	45%	25%	26%	59%	54%
	20-100%	18%	23%	67%	63%	23%	24%

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=enrolled since 1/1/99.

Table A.2 5th Grade Demographics (1999)

		No Breakfast		Fastbreak		Control	
		Percentage of 5th Graders	Percentage of Schools	Percentage of 5th Graders	Percentage of Schools	Percentage of 5th Graders	Percentage of Schools
TOTAL		N = 6,200	N = 94	N = 11,214	N = 251	N = 9,351	N = 204
Strata	Mpls/St.Paul	2%	3%	59%	54%	3%	3%
	TC Suburbs	43%	31%	6%	6%	25%	23%
	Outstate >2000	30%	19%	19%	19%	37%	29%
	Outstate <2000	25%	47%	16%	21%	35%	45%
LEP	0%	55%	63%	35%	45%	42%	54%
	1-9%	41%	32%	15%	12%	46%	33%
	10-100%	4%	5%	50%	43%	12%	13%
Special Ed	0-9%	31%	28%	24%	25%	18%	23%
	10-19%	63%	67%	75%	71%	74%	71%
	20-100%	6%	5%	1%	4%	8%	6%
F/R Lunch	0-19%	31%	21%	0%	0%	0%	0%
	20-29%	35%	29%	4%	2%	17%	15%
	30-49%	26%	31%	35%	34%	70%	66%
	50-100%	8%	19%	61%	64%	14%	19%
New to District	0-9%	35%	37%	9%	10%	18%	24%
	10-19%	49%	44%	25%	26%	58%	50%
	20-100%	16%	19%	67%	64%	24%	26%

Note: LEP=Limited English Proficiency; Special Ed=Special Education; F/R Lunch=eligible for free or reduced-price lunch; New to District=enrolled since 1/1/99.

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APPENDIX B: Achievement

The achievement data in the following five tables show the statistical significance of achievement data after controlling for demographic variables: percentages of students with limited English proficiency, students in special education, student eligibility for free or reduced-price lunch, and new students. The tables include results for adjusted effect sizes. The adjusted effect size is a variation of d equal to the difference between adjusted group means, divided by the square root of the mean square within. The adjusted means are the estimated marginal means after controlling for demographic variables. The mean square within is from the analysis in which the demographic variables were controlled for. The F-test is a comparison of differences between the three gropus of schools—not just *Fastbreak* and *Control*.

Tables A.3 and A.4 contain data from 3rd grade mathematics and reading assessments. Tables A.5, A.6, and A.7 (page 50) contain data from 5th grade mathematics, reading, and writing assessments.

Table A.3 3rd Grade Mathematics

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast/ Control	No Breakfast/- Fastbreak	Fastbreak/- Control	F-value	Significance
Gain in Mean Score	14.00	24.50	27.12	2808.70	2233.28	-.050	-.248	-.198	.795	.452
Gain in % at or above level II	1.66	2.94	4.12	68.84	114.12	-.142	-.296	-.154	1.658	.192
Gain in % at or above level III	3.05	4.72	6.15	98.72	181.97	-.144	-.312	-.168	1.843	.160

Table A.4 3rd Grade Reading

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast/ Control	No Breakfast/ Fastbreak	Fastbreak/ Control	F-value	Significance
Gain in Mean Score	27.10	35.26	33.03	1554.53	1799.11	.057	-.150	-.207	1.157	.315
Gain in % at or above level II	2.19	4.62	4.86	63.43	188.31	-.030	-.335	-.305	2.969	.053
Gain in % at or above level III	3.37	4.29	3.17	82.34	40.62	.123	-.022	-.103	.493	.611

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Table A.5 5th Grade Mathematics

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast/ Control	No Breakfast/ Fastbreak	Fastbreak/ Control	F-value	Significance
Gain in Mean Score	52.21	44.73	59.79	1709.08	5553.76	-.364	-.183	.181	3.250	.040
Gain in % at or above level II	6.12	5.84	6.47	68.15	9.72	-.076	-.042	.034	.143	.867
Gain in % at or above level III	8.26	6.62	10.06	90.34	285.59	-.362	-.189	.173	3.161	.044

Table A.6 5th Grade Reading

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast/ Control	No Breakfast/ Fastbreak	Fastbreak/ Control	F-value	Significance
Gain in Mean Score	40.51	31.77	46.53	1893.91	5610.54	-.340	-.138	.201	2.962	.053
Gain in % at or above level II	4.67	3.38	5.23	55.67	95.54	-.248	-.075	.173	1.716	.181
Gain in % at or above level III	7.29	4.90	7.72	83.16	251.89	-.310	-.047	.262	3.029	.050

Table A.7 5th Grade Writing

	Adjusted Means					Adjusted Effect Sizes				
	Fastbreak	Control	No Breakfast	Mean square within	Mean square between	No Breakfast/ Control	No Breakfast/ Fastbreak	Fastbreak/ Control	F-value	Significance
Gain in Mean Score	-9.14	-28.67	-12.11	3726.12	12483.02	-.271	.049	.320	3.350	.036
Gain in % at or above level II	-1.46	-3.72	-2.68	39.28	130.46	-.166	.195	.361	3.321	.037
Gain in % at or above level III	-2.40	-5.19	-1.39	136.91	417.36	-.325	.086	.238	3.048	.049

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APPENDIX C: Participation

Table A.8 (Gain in School Breakfast Program Participation from 1998–99 to 1999–00) shows the statistical significance for breakfast participation data, including the adjusted effect size data for the gain in School Breakfast Program participation.

Table A.8 Gain in School Breakfast Program Participation from 1998-99 to 1999-00

	Fastbreak	Control	Mean square within	Mean square between	Adjusted Effect Size Fastbreak/ Control	F-value	Significance
Gain in participation: total attending	.08	.01	.013	.226	.614	16.929	.000
Gain in participation: reduced-price attending	.12	.00	.029	.570	.705	19.674	.000
Gain in participation: free attending	.04	.01	.022	.040	.202	1.804	.181
Gain in participation: total enrolled	.10	.01	.024	.313	.581	13.077	.000
Gain in participation: reduced-price enrolled	.11	.01	.028	.501	.598	17.877	.000
Gain in participation: free enrolled	.04	.01	.021	.048	.207	2.263	.134

APPENDIX D: Survey Forms 1–4

Two different versions of the survey were mailed to public elementary schools, one version to principals and another to food service personnel. Forms 1 (School Food Service personnel) and 2 (Principal) were mailed to the 188 Control schools, and forms 3 (School Food Service personnel) and 4 (Principal) were mailed to the 313 Fastbreak schools included in the study.

Form 1

School Breakfast Program Survey

School Food Service

Please print.

Name of School Food Authority_____
Last First M

Telephone (___)_____ **Fax (___)**_____ **E-Mail** _____

Name of person completing survey_____
Last First M

Telephone (___)_____ **Fax (___)**_____ **E-Mail** _____

Instructions: This survey pertains to the school identified on the cover label. Please answer the questions as they apply to this school only.

The first two questions pertain to the 1998-99 school year.

1. How much did you charge for an elementary student breakfast at this school during the 1998-99 school year?

   Full-Paying Student $ _.__ Reduced-Price Student $ _.__

2. During the 1998-99 school year did this school qualify for: Check all that apply.

   _____ Provision 2

   _____ Provision 3

   _____ Severe Need

   _____ Non-Severe Need

Questions 3 through 22 pertain to the 1999-2000 school year.

3. How much do you currently charge for an elementary student breakfast at this school for the 1999-00 school year?

   Full-Paying Student $ _.__ Reduced-Priced Student $ _.__

4. In this elementary school do you use a computerized system at the student point of sale for breakfast?

   _____ Yes _____ No

5. If you answered yes to question 4, what is the name of the computer system? Please check the one you use.

_____ Accu-Scan

_____ Lemar

_____ Mac-Lunch

_____ PCS Revenue Control

_____ Skyward

_____ Wordware

_____ Bon Appetit

_____ Other (Describe) _____

6. What grade levels participate in the School Breakfast Program at this school? Circle all that apply.

K 1 2 3 4 5 6 7 8 9 10 11 12

7. List the total time period that the breakfast meal service is available to students.

Begins at: _____AM Ends at: _____AM

8. Where and when do students eat breakfast? Check all that apply.

_____ In the school cafeteria before school starts

_____ In the school cafeteria after the start of the school day

_____ In the classroom before the start of the school day

_____ In the classroom after the start of the school day

_____ Other (Explain) _____

9. What breakfast serving method(s) is/are used? Check all that apply.

_____ A traditional cafeteria line

_____ Breakfast menu components are delivered to the classroom

_____ Bag or pre-packed meal is provided to each student

_____ Other (Describe)_____

10. What is the breakfast meal preparation method used for this school? Check one.

_____ Full preparation method, on-site kitchen

_____ Heat and serve (partial preparation on-site)

_____ Catered meal from a central kitchen or other source

_____ Other (Describe) _____

11. How was the School Breakfast Program promoted to parents this year? Check all that apply.

_____ No notification or promotion conducted

_____ District publication

_____ School newsletter

_____ Parent meeting

_____ Local paper

_____ Promotional flyer

_____ Other (Describe) _____

We are seeking your opinions about the benefits and difficulties in implementing the School Breakfast Program. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

12. The School Breakfast Program provides benefits to the overall School Meal Programs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

13. There were barriers in implementing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school.

	Still is a barrier	Was a barrier, but has been overcome	Not ever a barrier
14. Bus schedules	☐	☐	☐
15. Lack of time before the school day	☐	☐	☐
16. Takes away from the instructional day	☐	☐	☐
17. Lack of parent support	☐	☐	☐
18. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐
19. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐
20. Additional custodian services are needed	☐	☐	☐
21. Students perceive the school breakfast as not socially acceptable	☐	☐	☐
22. Other difficulties (Describe)_____	☐	☐	☐

_____

Items 23 and 24 request school breakfast and lunch data from the previous school year, 1998-99. Please provide the data requested for the 1998-99 school year.

23. 1998-99 School Breakfast Data

Month	Number of Days Served	Total Number of Breakfasts Served to Students	Total Number of Free Breakfasts Served to Students	Total Number of Reduced Price Breakfasts Served to Students
Jul-98				
Aug-98				
Sept-98				
Oct-98				
Nov-98				
Dec-98				
Jan-99				
Feb-99				
Mar-99				
Apr-99				
May-99				
Jun-99				

24. 1998-99 School Lunch Data

Month	Number of Days Served	Total Number of Lunches Served to Students	Total Number of Free Lunches Served to Students	Total Number of Reduced Price Lunches Served to Students
Jul-98				
Aug-98				
Sept-98				
Oct-98				
Nov-98				
Dec-98				
Jan-99				
Feb-99				
Mar-99				
Apr-99				
May-99				
Jun-99				

25. Additional comments or concerns

Thank you for completing this survey.
Please retain a copy for your records.

Return this survey by May 16, 2000, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

Form 2

School Breakfast Program Survey
Principal

Please print.

Principal Name _____
Last First M

Telephone (___)_____**Fax(___)**_____**E-mail** _____

Name of person completing survey if other than principal _____
Last First M

Telephone (___)_____**Fax (___)**_____ **E-Mail** _____

Instructions: This survey pertains to the school identified on the cover label. Please answer the questions as they apply to this school only.

1. What time does the last bus arrive in the morning at this school? _____ AM

2. What is the official start-time of the school day? _____AM

3. Who usually provides supervision of students while they eat breakfast? Check all that apply.

   _____ Each class has a teacher present while the students eat their breakfast.

   _____ An aide is assigned by the school to be present during breakfast.

   _____ School food service personnel supervise the students in the cafeteria

   _____ Other (Describe) _____

4. While the students eat, do other activities take place? Check all that apply

   _____ Students socialize with each other

   _____ Attendance is taken

   _____ School and classroom information is announced

   _____ Teachers explain the day's schedule

   _____ Students have a discussion (example: news events)

   _____ A book is read aloud

_____Student assignments are returned

_____ Other (Describe) _____

5. How were teachers informed of the School Breakfast Program this school year? Check all that apply.

_____ No information provided

_____ Announcement at a teacher meeting

_____ District publication

_____ School newsletter

_____ Promotional flyer

_____ Other (Describe) _____

6. How were students informed of the School Breakfast Program this year? Check all that apply.

_____ No information provided

_____ Classroom teacher

_____ School newsletter

_____ School food service personnel made presentations in classes

_____ Posters

_____ Promotional flyer

_____ Parent communication

_____ Other (Describe) _____

7. Is nutrition education included in your elementary curriculum?

_____ Yes _____ No _____ Do not know

8. If yes, does the instruction include the benefits of eating breakfast?

_____Yes _____No _____ Do not know

We are seeking your opinions about the benefits and difficulties in implementing the School Breakfast Program. Please provide us with your perceptions of the benefits and barriers according to the statements below.

9. There are benefits to the school for providing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. Please check the all the benefits that you think apply.

- ☐ Improved attendance
- ☐ Decreased incidence of tardiness
- ☐ Decreased incidence of negative behaviors (rowdiness, aggressive behaviors, etc.)
- ☐ Fewer visits to the nurse's office in the morning due to a headache, stomach ache or tiredness.
- ☐ Opportunity for positive student socialization
- ☐ Students are more attentive to learning tasks
- ☐ Parents report school breakfast as a welcomed service.
- ☐ Other (Describe) _____

_____

11. There were barriers in implementing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Disagree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier
12. Bus schedules	☐	☐	☐
13. Lack of time before the school day	☐	☐	☐
14. Takes away from the instructional day	☐	☐	☐
15. Lack of parent support	☐	☐	☐
16. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐
17. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐
18. Additional custodian services are needed	☐	☐	☐
19. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐
20. Other difficulties (Describe)_____	☐	☐	☐

_____

21. Additional comments or concerns.

Thank you for completing this questionnaire.

Return this survey by May 16, 2000, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

Form 3

Fast Break to Learning School Breakfast Program Survey
School Food Service

Please print.

Name of School Food Authority _____
Last First M

Telephone (___)_____ **Fax**(___)_____ **E-Mail**_____

Name of person completing survey_____
Last First M

Telephone(___)_____**Fax**(___)_____ **E-mail**_____

Instructions: This survey pertains to the school identified on the cover label. Please answer the questions as they apply to this school only.

The first two questions pertain to the 1998-99 school year.

1. How much did you charge for an elementary student breakfast at this school during the 1998-99 school year?

   Full-Paying Student $ __.___ Reduced-Priced Student $ __.___

2. During the 1998-99 school year did this school qualify for: Check all that apply.

   _____ Provision 2

   _____ Provision 3

   _____ Severe Need

   _____ Non-Severe Need

Questions 3 through 29 pertain to the 1999-2000 school year.

3. How much do you currently charge elementary students for breakfast in schools not participating in the Fast Break to Learning Breakfast Program during the 1999-00 school year?

   Full-Paying Student $__.___ Reduced-Priced Student $ __.___

   Not Applicable (All schools are on the Fast Break to Learning Program) _____

4. How much do you currently charge for an elementary student Fast Break to Learning Breakfast at this school for the 1999-00 school year?

   Full-Paying Student $____.___ Reduced-Priced Student $___.___

5. Do you now serve breakfast at no charge to elementary students in this school's Fast Break to Learning Breakfast Program who previously received the breakfast at the reduced-price?

   _____ Yes _____ No

6. If you answered yes to question 5, then what date did you begin serving reduced-priced students at no charge?

   _____(mm/dd/yy)

7. Did you begin the 1999-00 school year by charging full paying students and later stopped charging them?

   _____ Yes _____ No

8. If you answered yes to question 7, when did you stop charging the paying student?

   _____(mm/dd/yy)

9. In this elementary school do you use a computerized system at the student point of sale for breakfast?

   _____ Yes _____ No

10. If you answered yes to question 9, what is the name of the computer system? Please check the one you use.

    _____ Accu- Scan

    _____ Lemar

    _____ Mac-Lunch

    _____ PCS Revenue Control

    _____ Skyward

    _____ Wordware

_____ Bon Appetit

_____ Other (Describe) _____

11. What are the sources of the Fast Break to Learning Grant matching funds for this school? Check all that apply.

_____ Charge to the full-paying student

_____ Revenue from a la carte sales

_____ Donations (donated money or goods)

_____ Volunteer labor (equated into dollars)

_____ School fundraiser

_____ Other (Describe) _____

Schools use many different ways to plan and implement new programs. Please indicate who was involved in planning and implementing the Fast Break to Learning Breakfast Program.

12. Who was involved in planning and implementing the Fast Break to Learning Breakfast Program? Check all that apply.

_____ School Food Authority

_____ Business Manager

_____ Principal

_____ School Food Service Managers

_____ Teachers

_____ Parents

_____ School Nurse

_____ Other (Describe)_____

13. What grade levels participate in the Fast Break to Learning Breakfast Program at this school? Circle all that apply.

K 1 2 3 4 5 6 7 8 9 10 11 12

14. List the total time period that the breakfast meal service is available to students.

Begins at: _____ AM Ends at: _____AM

15. Where and when do students eat breakfast? Check all that apply.

_____ In the school cafeteria before school starts

_____ In the school cafeteria after the start of the school day

_____ In the classroom before the start of the school day

_____ In the classroom after the start of the school day

_____ Other (Explain) _____

16. What breakfast serving method(s) is/are used? Check all that apply

_____ A traditional cafeteria line

_____Breakfast menu components are delivered to the classroom

_____ Bag or pre-packed meal is provided to each student

_____ Other (Describe)_____

17. What is the breakfast meal preparation method used for this school? Check one.

_____ Full preparation, on-site kitchen

_____ Heat and serve (partial preparation on-site)

_____ Catered meal from a central kitchen or other source

_____ Other (Describe) _____

18. How was the Fast Break to Learning Breakfast Program promoted to parents this year? Check all that apply.

_____ No notification or promotion conducted

_____ District publication

_____ School newsletter

_____ Parent meeting

_____ Local paper

_____ Flyer sent home to parents

_____ Other (Describe) _____

We are seeking your opinions about the benefits and difficulties in implementing the Fast Break to Learning School Breakfast Program. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

19. The School Breakfast Program provides benefits to the overall School Meal Programs.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

20. There were barriers to implementing the School Breakfast Program.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
☐	☐	☐	☐	☐

Form 3

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier
21. Bus schedules	☐	☐	☐
22. Lack of time before the school day	☐	☐	☐
23. Takes away from the instructional day	☐	☐	☐
24. Lack of parent support	☐	☐	☐
25. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐
26. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐
27. Additional custodian services are needed	☐	☐	☐
28. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐
29. Other difficulties (Describe)_____	☐	☐	☐

_____

Items 30 and 31 request school breakfast and lunch data from the previous school year, 1998-99. Please provide the data requested for the 1998-99 school year.

30. 1998-99 School Breakfast Data

Month	Number of Days Served	Total Number of Breakfasts Served to Students	Total Number of Free Breakfasts Served to Students	Total Number of Reduced Price Breakfasts Served to Students
Jul-98				
Aug-98				
Sept-98				
Oct-98				
Nov-98				
Dec-98				
Jan-99				
Feb-99				
Mar-99				
Apr-99				
May-99				
Jun-99				

31. 1998-99 School Lunch Data

Month	Number of Days Served	Total Number of Lunches Served to Students	Total Number of Free Lunches Served to Students	Total Number of Reduced Price Lunches Served to Students
Jul-98				
Aug-98				
Sept-98				
Oct-98				
Nov-98				
Dec-98				
Jan-99				
Feb-99				
Mar-99				
Apr-99				
May-99				
Jun-99				

32. Do you plan to apply for Fast Break to Learning grant funds for the 2000-01 school Year?

_____ Yes _____ No

33. If no, please explain why.

_____

_____

_____

34. Additional comments or concerns

Thank you for completing the survey.
Please retain a copy of the survey for your records.

Return this survey by May 16, 2000, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266

Form 4

Fast Break to Learning School Breakfast Program Survey
Principal

Please print.

Principal Name_____
Last First M

Telephone (___)_____ Fax(___)_____ E-Mail _____

Name of person completing survey if other than principal_____
Last First M

Telephone(___)_____ Fax (___)_____E-Mail _____

Instructions: This survey pertains to the school identified on the cover label. Please respond to the questions as they apply to this school only.

1. What time does the last bus arrive in the morning at this school? _____ AM

2. What is the official start-time of the school day? _____AM

3. Who usually provides supervision of students while they eat breakfast? Check all that apply.

   _____ Each class has a teacher present while the students eat breakfast.

   _____ An aide is assigned by the school to be present during breakfast.

   _____ School food service personnel supervise the students in the cafeteria

   _____ Other (Describe) _____

4. While the students eat, do other activities take place? Check all that apply.

   _____ Students socialize with each other

   _____ Attendance is taken

   _____ School and classroom information is announced

   _____ Teachers explain the day's schedule

   _____ Students have a discussion (example: news events)

_____ A book is read aloud

_____ Student assignments are returned

_____ Other (Describe)_____

5. How were teachers informed of the Fast Break to Learning School Breakfast Program this school year? Check all that apply.

_____ No information provided

_____ Announcement at a teacher meeting

_____ District publication

_____ School newsletter

_____ Promotional flyer

_____ Other (Describe) _____

6. How were students informed of the Fast Break to Learning School Breakfast Program this year? Check all that apply.

_____ No information provided

_____ Classroom teacher

_____ School newsletter

_____ School food service personnel made presentations in classes

_____ Posters

_____ Promotional flyer

_____ Parent communication

_____ Other (Describe) _____

7. Is nutrition education included in your elementary curriculum?

_____ Yes _____ No _____ Do not know

8. If yes, does the instruction include the benefits of eating breakfast?

_____Yes _____No _____ Do not know

We are seeking your opinions about the benefits and difficulties in implementing the Fast Break to Learning School Breakfast Program. Please provide us with your perceptions of the benefits and the barriers according to the statements below.

9. There are benefits to the school for providing the School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

10. Please check all the benefits that you think apply:

- ☐ Improved attendance
- ☐ Decreased incidence of tardiness
- ☐ Decreased incidence of negative behaviors (rowdiness, aggressive behaviors, etc.)
- ☐ Fewer visits to the nurse's office in the morning due to a headache, stomach ache or tiredness.
- ☐ Opportunity for positive student socialization
- ☐ Students are more attentive to learning tasks
- ☐ Parents report school breakfast as a welcomed service.
- ☐ Other (Describe)_____

_____

11. There were barriers in implementing the Fast Break to Learning School Breakfast Program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Some schools have reported the following difficulties or barriers in implementation. Please indicate the presence or absence of these in your school.

	Still is a Barrier	Was a barrier, but has been overcome	Not ever a barrier
12. Bus schedules	☐	☐	☐
13. Lack of time before the school day	☐	☐	☐
14. Takes away from the instructional day	☐	☐	☐
15. Lack of parent support	☐	☐	☐
16. Perception that school breakfast is only for free and reduced-priced students	☐	☐	☐
17. Additional supervisory staff are needed while students eat breakfast	☐	☐	☐
18. Additional custodian services are needed	☐	☐	☐
19. Students perceive the school breakfast as not socially acceptable.	☐	☐	☐
20. Other difficulties (Describe)_____	☐	☐	☐

_____

21. Additional comments or concerns

Thank you for completing this questionnaire

Return this survey by May 16, 2000, in the envelope provided to:

Minnesota Department of Children, Families & Learning
Food and Nutrition Service
1500 Highway 36 West
Roseville, MN 55113-4266